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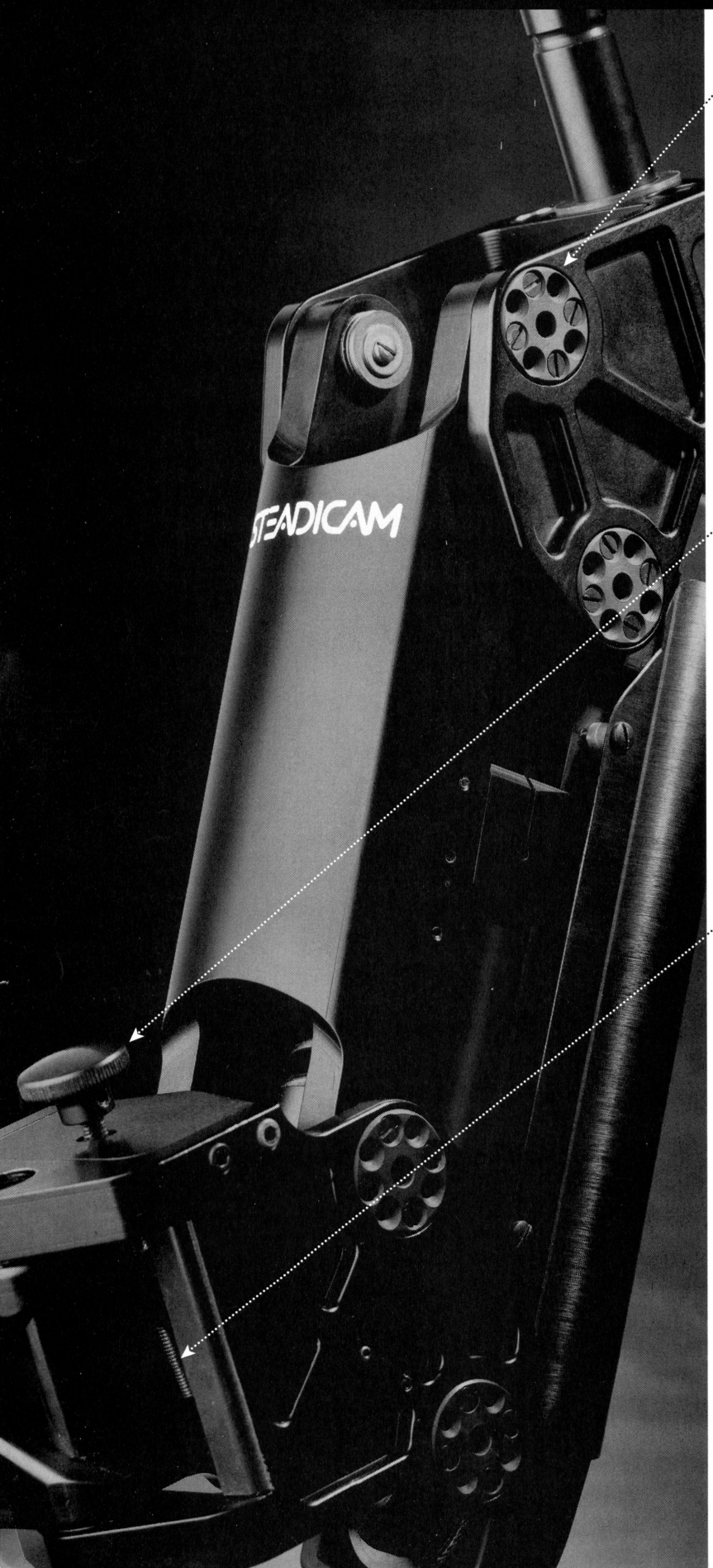
Alien Resurrection Revives Ripley's Plight

Starship Troopers: An Insect Uprising in Outer Space

Reevaluating the Very Surreal Seconds

We asked some experts why they prefer the new Master Series arm.



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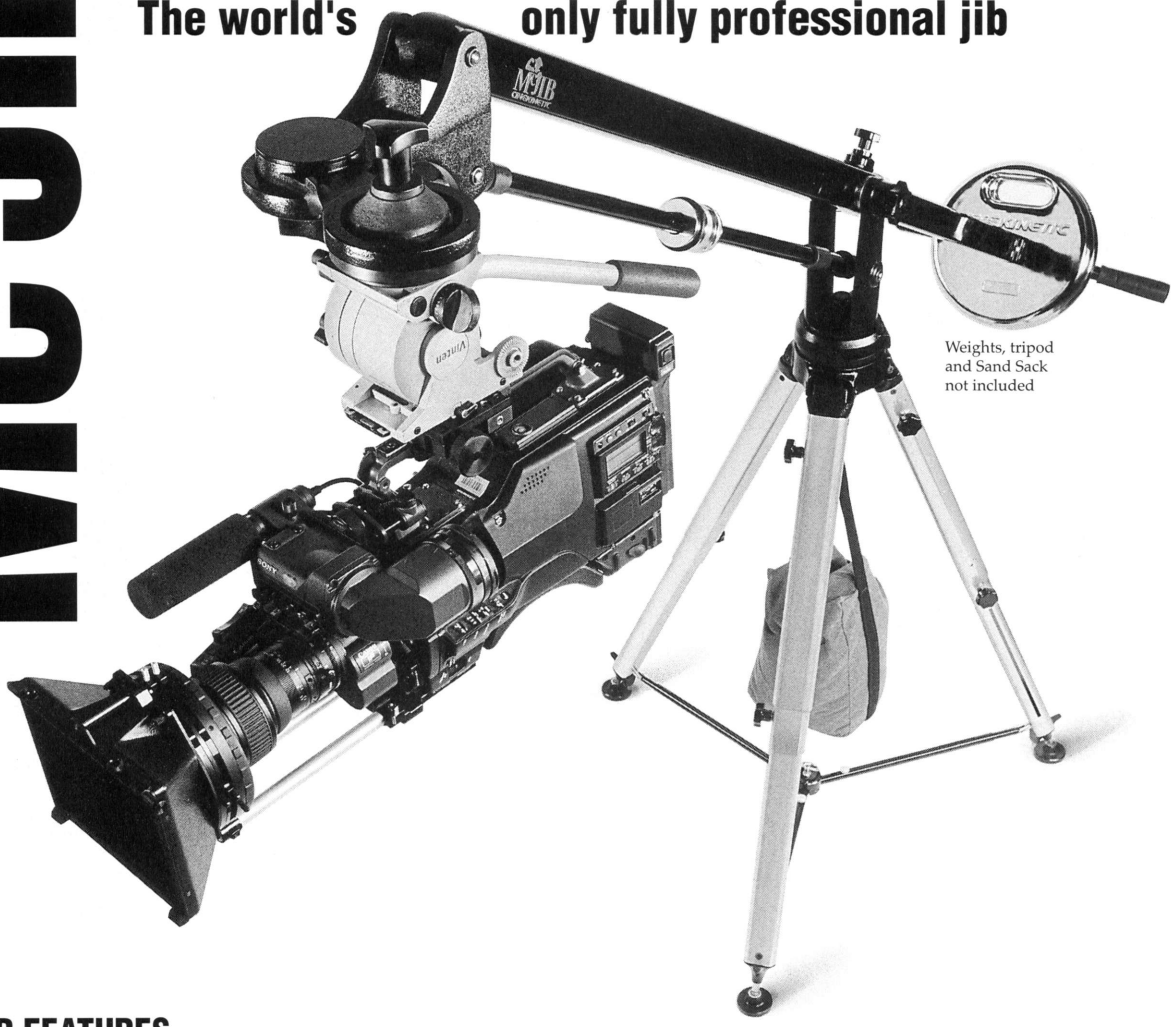
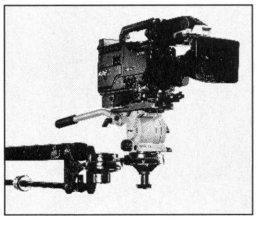


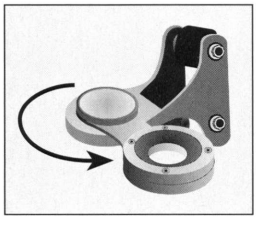
Weights, tripod and Sand Sack not included

ADVANCED FEATURES

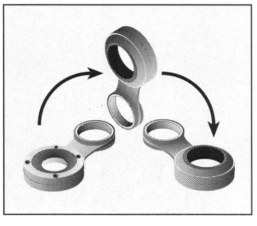
Overslung



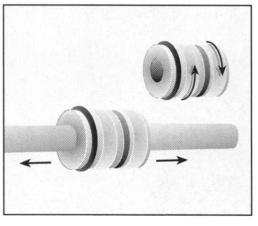
Offset Arm



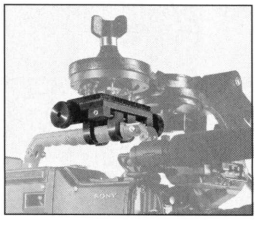
Invertible Bowl



Trim Weight



Underslinger



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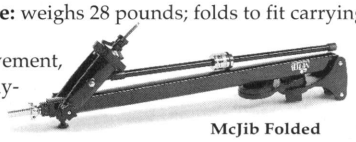

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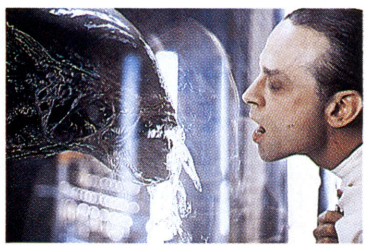

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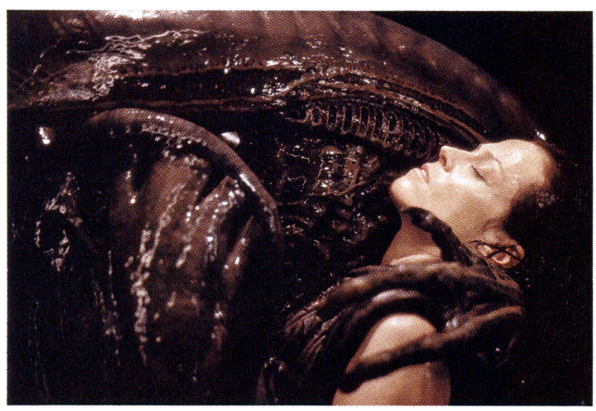

On Our Cover: The cloned Lt. Ripley (Sigourney Weaver) finds herself in the embrace of a truly strange bedfellow in *Alien Resurrection,* directed by Jean-Pierre Jeunet and photographed by Darius Khondji, AFC (photo by Suzanne Tenner, courtesy of 20th Century Fox).

Contributing Authors: Brooke Comer, Vincent LoBrutto, Christopher Probst, Les Paul Robley

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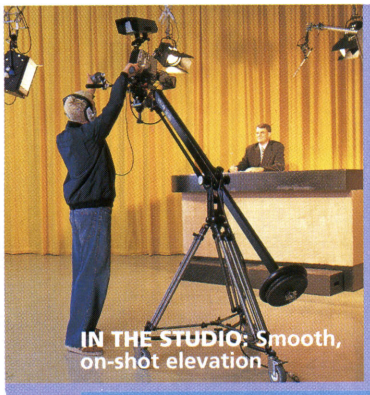

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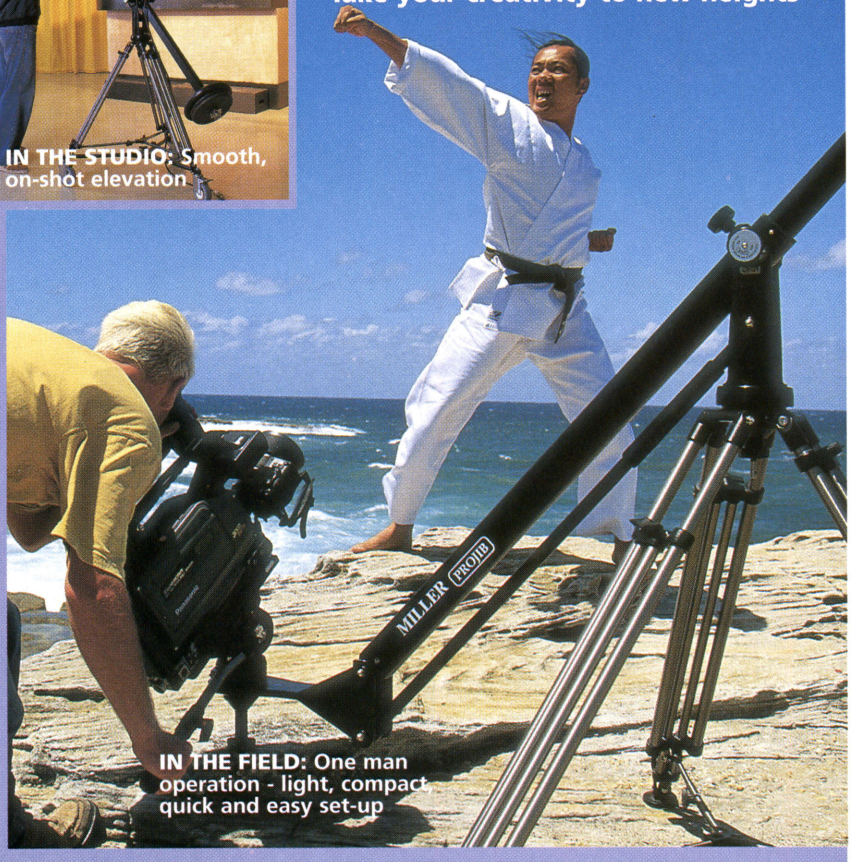

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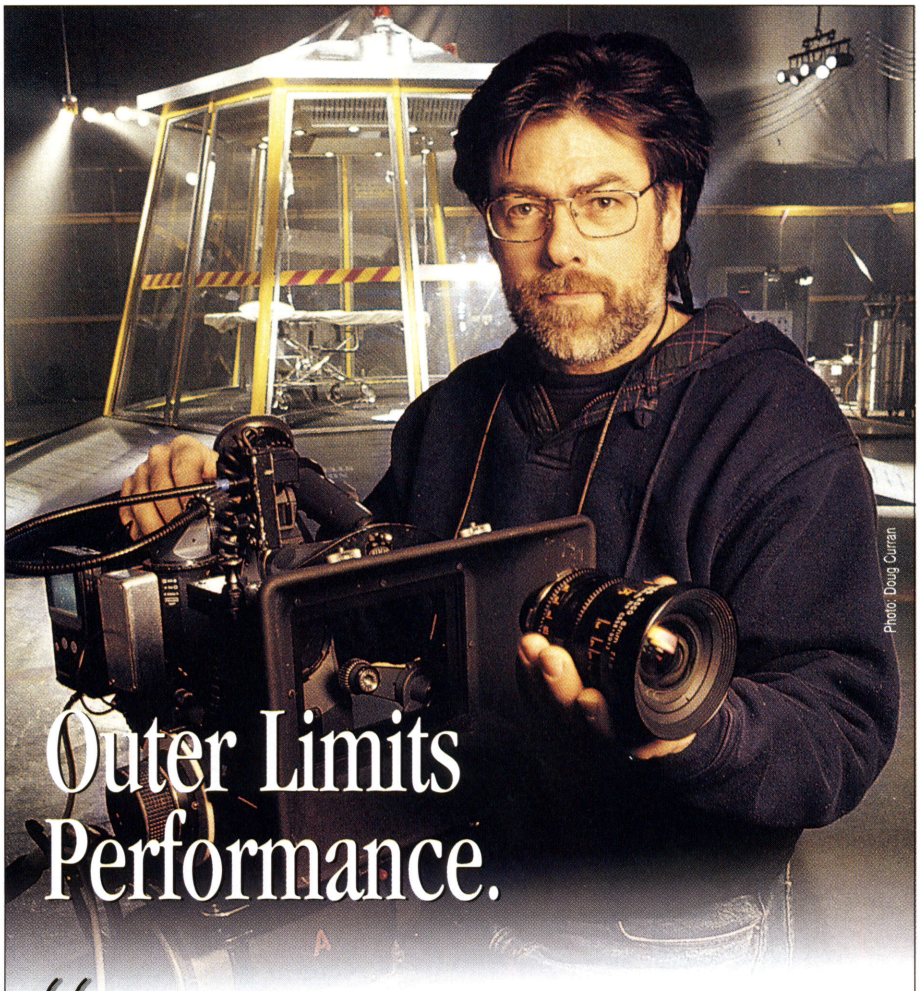

Photo: Doug Curran

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for *The Outer Limits*

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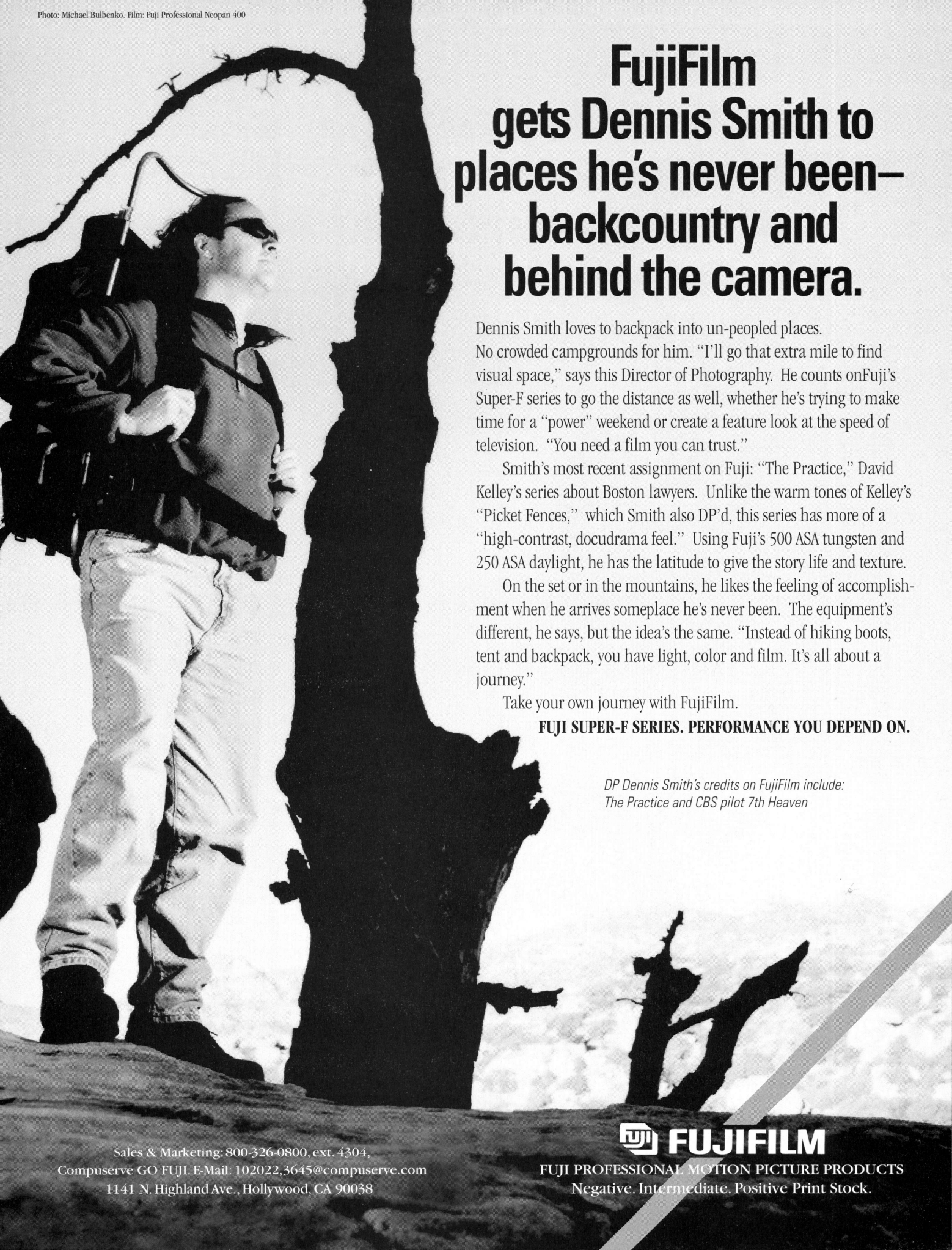

Photo: Michael Bulbenko. Film: Fuji Professional Neopan 400

FujiFilm gets Dennis Smith to places he's never been– backcountry and behind the camera.

Dennis Smith loves to backpack into un-peopled places. No crowded campgrounds for him. "I'll go that extra mile to find visual space," says this Director of Photography. He counts onFuji's Super-F series to go the distance as well, whether he's trying to make time for a "power" weekend or create a feature look at the speed of television. "You need a film you can trust."

Smith's most recent assignment on Fuji: "The Practice," David Kelley's series about Boston lawyers. Unlike the warm tones of Kelley's "Picket Fences," which Smith also DP'd, this series has more of a "high-contrast, docudrama feel." Using Fuji's 500 ASA tungsten and 250 ASA daylight, he has the latitude to give the story life and texture.

On the set or in the mountains, he likes the feeling of accomplishment when he arrives someplace he's never been. The equipment's different, he says, but the idea's the same. "Instead of hiking boots, tent and backpack, you have light, color and film. It's all about a journey."

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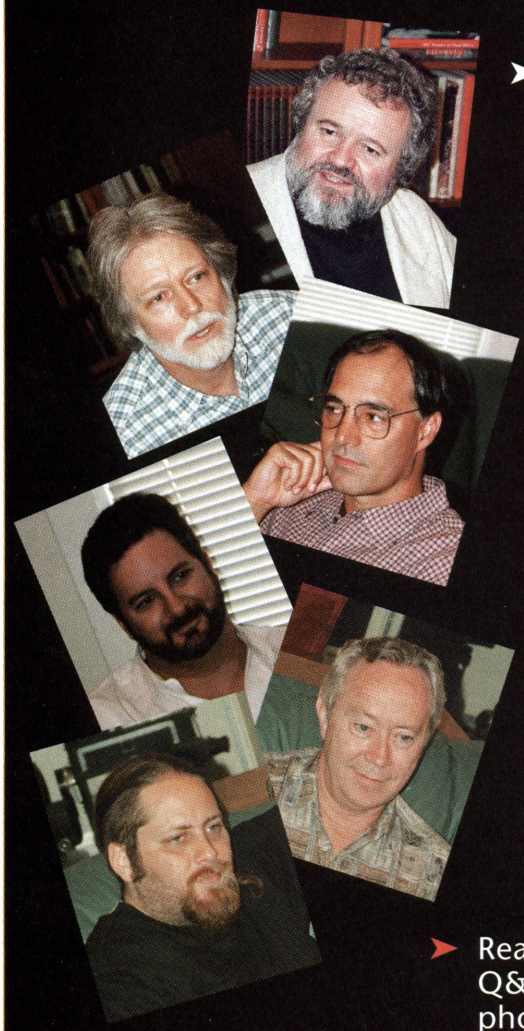

➤ Be a fly on the wall and listen as the **ASC's** Russell Carpenter, Curtis Clark and Allen Daviau discuss digital postproduction with **Digital Domain's** Wook Bilkis, Gray Marshall, and Price Pethel in our exclusive streaming audio roundtable discussion.

Top to bottom: Allen Daviau, ASC; Curtis Clark, ASC; Russell Carpenter, ASC; Gray Marshall , Price Pethel and Wook Bilkis.

➤ Read the web-exclusive Q&A with director of photography Brian Tufano, BSC regarding the surreal "heaven" sequences that bookend Danny Boyle's new film—the romantic comedy/dark thriller ***A Life Less Ordinary.***

➤ Ask the cinematography world a question, or start a discussion of your own in our new open forums.

Letters

Cop Land Conundrum

In your article on *Cop Land* [*AC* Sept. p. 55], there was a shot of the crew in action with the caption: "Edwards supervises a handheld shot executed with a custom-made rig." Well, the rig is nothing but a Steadicam mounted on a handlebar, a contraption known as the "Buddycam." This rig is usually carried by two grips, allowing the Steadicam operator to focus on framing, and is especially useful for fast running shots and/or when the operator is required to changes the lens height drastically within a shot.

— Afshin Javadi
Steadicam operator
Alexandria, VA

Thanks for the clarification. The AC *staff was even less observant while captioning the bottom photo on p. 56 of that same story, misidentifying actor Robert Patrick as director James Mangold. We regret both the lack of detail and the error.*

Properly Crediting *First Contact*

In the "Rendering New Worlds" article written by Jay Holben [*AC* Sept.], you give Fumi Mashimo sole credit for putting together *Star Trek: First Contact*'s 35-second opening shot.

The shot was a team effort designed, painted, composited and supervised by Robert Stromberg. Robert combined eight of his matte paintings with 3-D elements provided by Fumi Mashimo and built the shot using both AfterEffects and ElectricImage software.

— Tory Hazard
Executive Producer
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Culver City, CA

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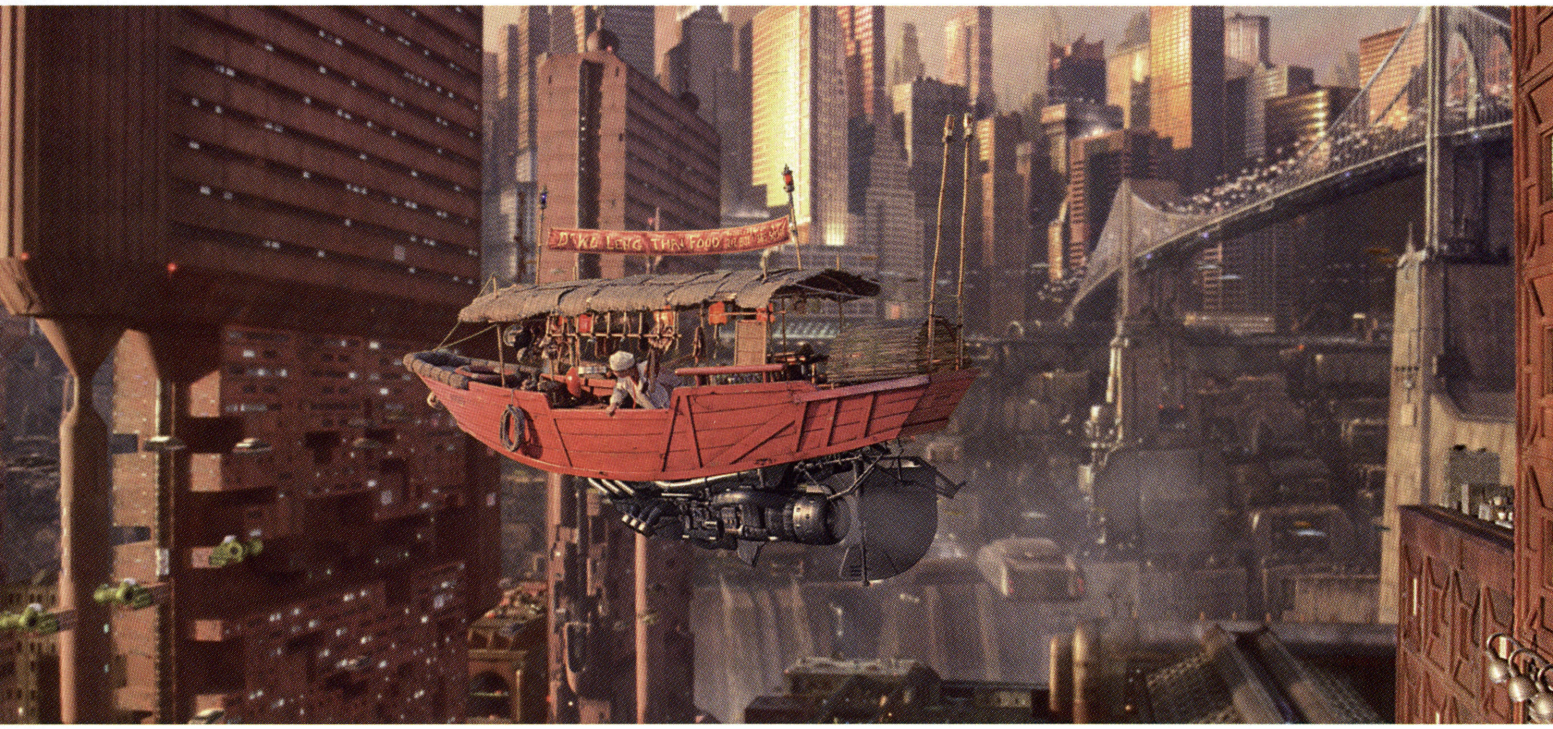
–Mark Stetson, Digital Domain's visual effects supervisor for "The Fifth Element"–



© 1997 Gaumont/Columbia Pictures Industries. Image courtesy of Digital Domain.

"For plate photography we used Arriflex 535B cameras and a prototype of the new 435 high-speed camera. About halfway through production Arriflex replaced our prototype with one of their first production 435 cameras. Visual effects DP, Bill Neil and I were both surprised by the steadiness of both cameras at all speeds. In fact, the new 435 was rock steady, good enough for composite work from 1 fps to 150 fps, both forward and reverse. It instantly became our camera of preference throughout the production. Fantastic!"

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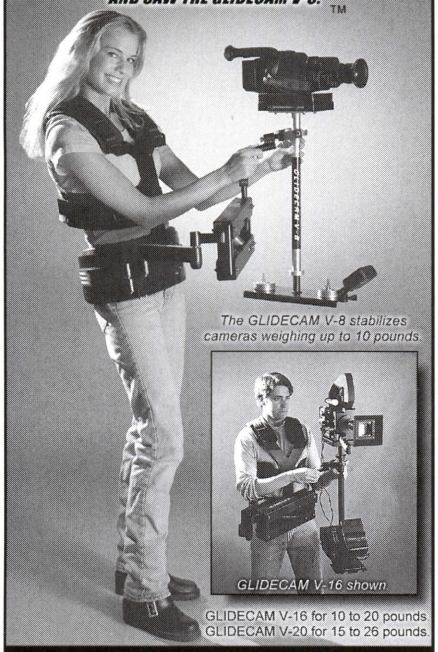
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NYC's Newest Digital Effects House

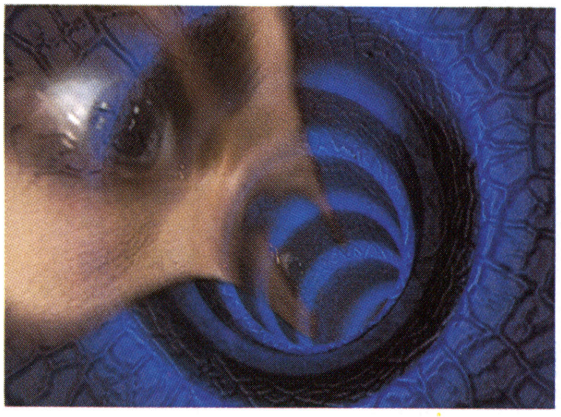
by Debra Kaufman

All indications point to a resurgence in New York City filmmaking. The total number of on-location shooting days has increased from 15,266 in 1993 to 21,286 in 1996. But even this nearly 50 percent increase is a conservative figure, says Julianne Cho, director of publicity for the Mayor's Office of Film, Theatre and Broadcasting, because it doesn't include studio shoots, pre- and postproduction or news. Traditional commercial production houses like Chelsea Pictures and Crossroad Films have opened feature film divisions. DreamWorks opened up a New York office. And the local indie feature filmmaking community is booming.

New York's postproduction community has quickly responded to this filmmaking renaissance with a launch of new ventures servicing the filmmaking community.

The word *oculus* — Latin for "eye," and the architectural term for the window at the top of a dome — is a metaphor for "vision" and, not coincidentally, the name of a brand-new digital effects and film design facility just opened by New York Media Group, which owns the postproduction house Post Perfect. Though Oculus' doors opened officially on September 2, the company has actually been functioning for awhile; it operates under the auspices of Post Perfect president Dean Winkler, who will guide the company strategically, and managing director Paco Carr, who worked in new development for New York Media Group and is spearheading Oculus' day-to-day affairs.

For Winkler and Carr, the burgeoning film industry in NYC was one impetus for opening Oculus. "The city's willingness to issue production permits represents an openness to the industry that didn't exist before," declares Winkler. "Industry-wide, events suggest that you can really begin to think of finishing films in New York City."

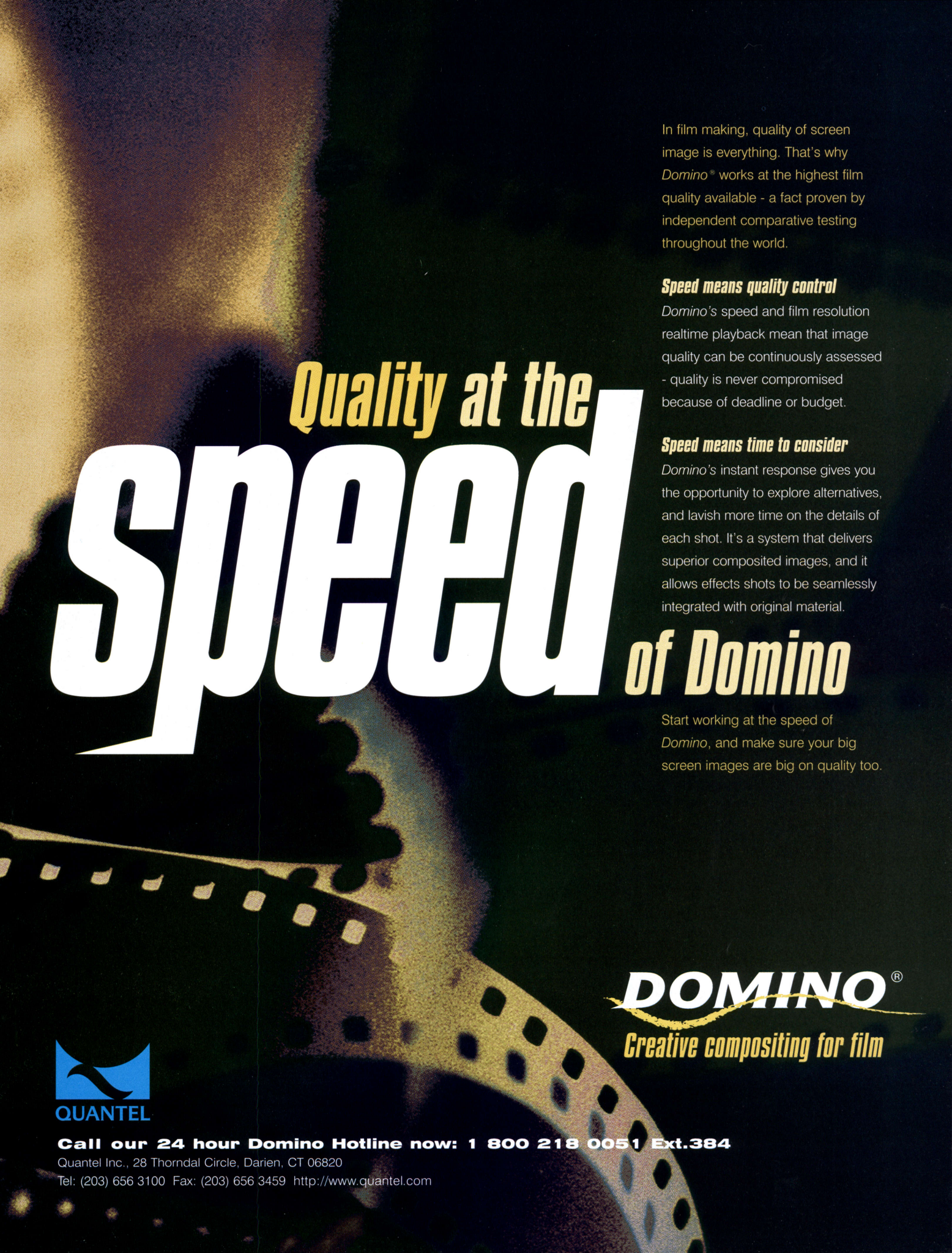


Logo created by Oculus for Dimension Films.

Another impetus was the increased accessibility of technology. In particular, the ability to scan film into the digital realm and then record the finished images back out to film is no longer a proprietary technology, limited to a small number of companies. In Los Angeles, such a process became a commodity in 1992 when Cinesite opened, providing scanning and recording to all those in need. The effect was to spawn dozens of boutique digital effects houses in the Los Angeles area. With the increased availability of scanning and recording services, New York City may be poised to do the same thing.

"The practicality of doing film postproduction in NYC was — and still is — much more limited than Los Angeles," admits Winkler. "But it's become practical to think of that as an achievable goal today. The whole infrastructure has developed here."

The formation of Oculus was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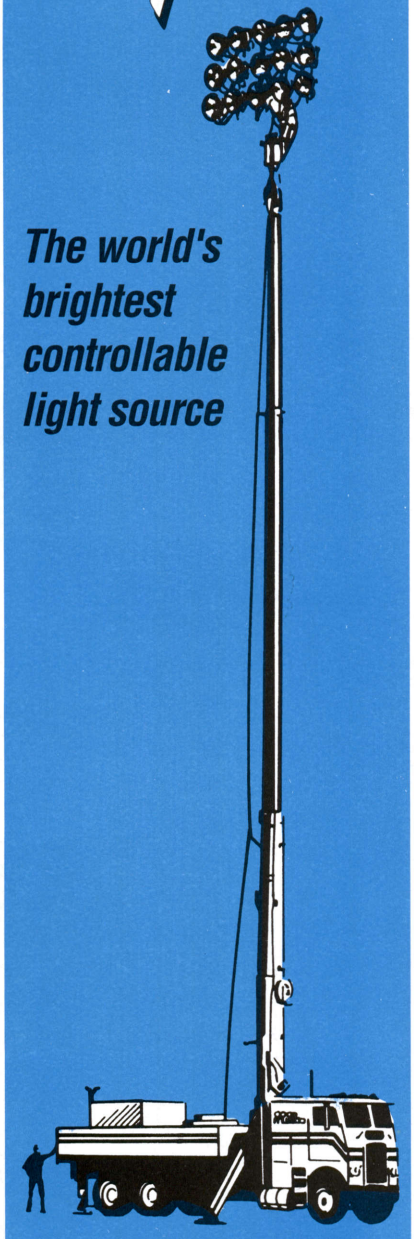
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also a natural for New York Media Group, given the synergy of the companies' combined assets. Post Perfect offers full-service postproduction, including creative editorial, film-to-tape transfer, video finishing, 2-D and 3-D computer graphics and animation, and audio production and sweetening. Other New York Media Group companies include the broadcast design firm Cyclotron, East Side Audio, Mixed Nuts Recording Studio, and Superdupe Recording. "There's a tremendous amount of talent at Post Perfect that's compatible with digital film effects," asserts Winkler. "The techniques overlap and the toys with which we realize this stuff has become resolution-independent, so our talent base and equipment applies — principally from Post Perfect, but also from Cyclotron."

"Oculus is a way to leverage all of these great resources for people who would ordinarily not have access to them," adds Carr. "The company can tailor these services for that community, in everything from project management to making sure we speak their language."

As such, Oculus itself possesses no equipment, but utilizes the talent and technology at other New York Media Group companies to offer digital effects, compositing, rig-removal/retouching, Avid editorial, title production, audio sweetening and mixing, 2-D and 3-D computer-generated imagery, and video dailies. More specifically, Oculus shares space with broadcast design firm Cyclotron, which was launched in the spring of 1997, and will utilize much of the talent and technology at both Cyclotron and Post Perfect. Oculus is meant to offer more than technology and talent. It's meant to be an "easy interface" for filmmakers who want to finish their projects in New York.

The eight people on the Oculus roster come from other New York Media Group companies, including Winkler, Carr, executive producer Paul Schneider, Cyclotron director/designer Tom Barham and Post Perfect senior animator/3-D department head Bruce Gionet. Though Oculus will book time with Post Perfect/Cyclotron equipment like any outside client, Winkler asserts that Oculus clients will have no problem getting the time and talent they want. "Everybody will be treated equally," he says. "We try to protect all of our clients. But New York Media Group has become a big company — it has 180 employees and the facility runs 24 hours a day — so we have a lot of resources."

Oculus is targeting two groups: independent film producers of features, shorts, and documentaries; and the producers of film work generated outside of Hollywood but shot in New York City. The company is making a special effort to reach out to the independent filmmaking community. Oculus is participating in an IFP feature film finishing fund that was the brainchild of Forensic Film's Herb Beigle, who sits on the board of the IFP. Under the terms of the IFP finishing fund, Oculus will offer postproduction services on selected feature films with deferred payment, for participation in the film.

As part of its opening ceremonies on September 21, Oculus sponsored an IFP seminar on digital postproduction techniques that was part of the IFP's Producer's weekend. The seminar covered the entire spectrum of digital post, from film scanning and recording to CGI and Mac/NT interfaces. But a significant part of the seminar focused on ways in which filmmakers can minimize the cost of digital effects, with information on everything from tracking to rotoscoping.

For Hollywood filmmakers shooting in New York, Carr believes Oculus could provide a variety of useful film postproduction services. For example, a director might want to see how a CG element is going to work with the live action before he leaves the locale where he shot the live-action elements. To enhance work with the Hollywood film community, Post Perfect is also on the verge of becoming the first New York City site for the Jazz Media Network, an uncompressed, 277 Mbit/sec, full CCIR601 digital network, which will enable coast-to-coast image transfer.

So far, Oculus has provided video dailies and telecine transfer for Chelsea Pictures' telefilm *Unmade Beds*, Avid editorial services for the documentary *Mississippi Field Hands*, and some CGI for a three-screen projection presentation for the Malaysian government. If all goes as planned, Hollywood and the indies will soon come knocking.

Information about Post Perfect can be obtained www.postperfect.com. The Oculus website (still under construction) is www.oculusfx.com. ◆

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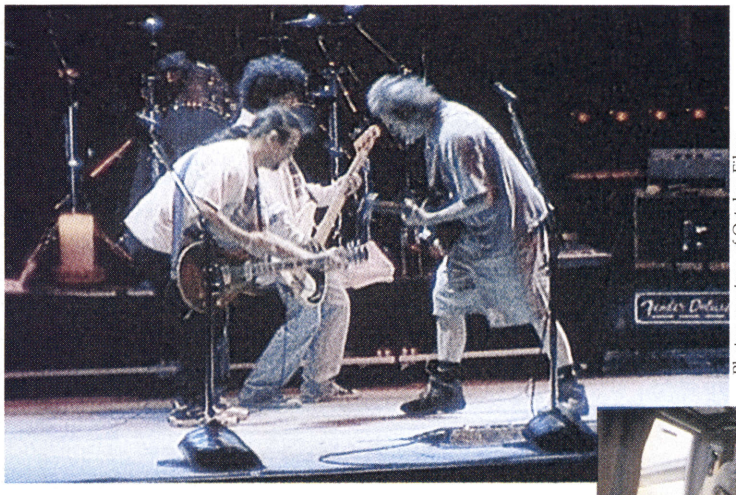
compiled by Andrew O. Thompson



Photos courtesy of October Films.

Above: ***Grainy 8mm concert footage of Canadian guitarist Neil Young jamming with members of his longtime band Crazy Horse from the theatrical documentary*** **Year of the Horse. Center:** ***Director Jim Jarmusch on the road with Young during one of the film's on-the-fly Q-&-A sessions.***

Jarmusch Gets Crazy About Super 8

by Eric Rudolph

Director Jim Jarmusch (*Mystery Train, Night on Earth, Dead Man*) had just finished shooting Super 8 footage for the Neil Young and Crazy Horse music video "Big Time" when the veteran Canadian rocker suggested that the indie auteur produce a feature documentary on his band in the very same format (see "Transforming Super 8," *AC* Nov. '96). Jarmusch had some initial reservations about the idea's merit, but Young quickly convinced him from both a fiscal and photographic standpoint. Jarmusch recalls, "Neil liked the look of Super 8 and enjoyed seeing us scurrying around with these little cameras, pulling them out of bags and filming whenever we wanted to. He said, 'I'll pay for it; we'll just start shooting some stuff and if we don't like it we'll throw it away. It's not going to be that expensive; it's not like we'll be shooting 70mm. Just bring those little cameras you used for the video and see what you get.' I thought, 'What a great idea.'"

Using the Super 8 format for theatrical film was not that much of an aesthetic stretch for Jarmusch, who offers, "I'm insistent that the visual quality of a film be suggested by the content and nature of the subject. Super 8 seems to go really well with the raw sound of Neil and Crazy Horse, the world's greatest garage band. The footage becomes almost abstract because of the graininess and rawness of the tiny image. The effect of light passing through film of any kind is something I find beautiful; there's something magical about it. Super 8 is such an extreme that, for me, the magic is often enhanced."

The film Jarmusch created, *Year of the Horse,* is a document of the 1996 world tour staged by Crazy Horse, the ragged hard rock band Young has worked with on and off for nearly 30 years. The film serves as a loose, grainy tribute to an act known for being loud, grungy and, according to their fans and most critics, utterly transcendent.

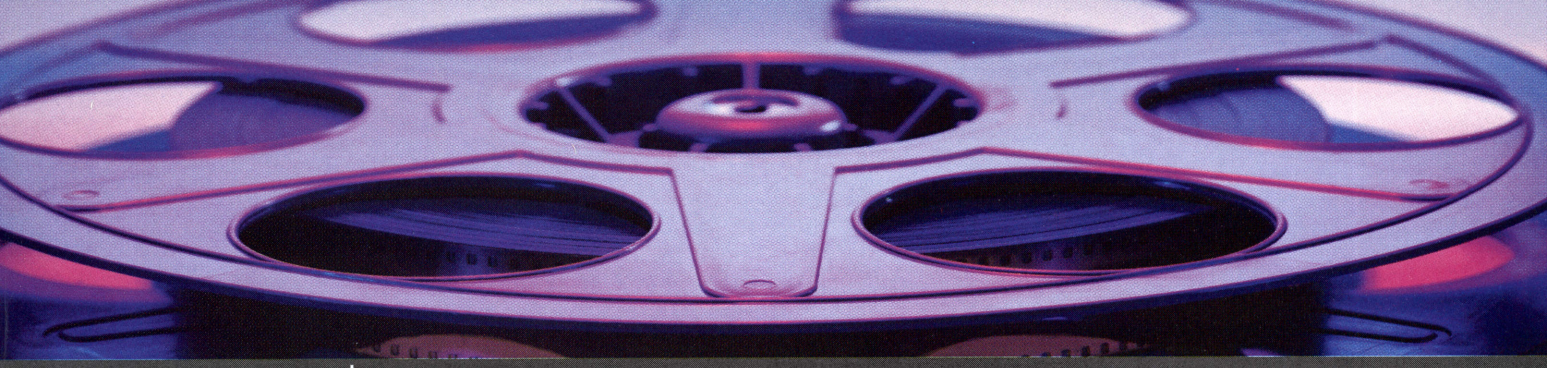
Ironically, while many of today's top filmmakers made their first images on a Super 8 or regular 8mm camera, Jarmusch did not receive a proper introduction to the format until late in his career. "Aside from shooting a little with my family's home movie camera, I'd never made any kind of a film in Super 8," admits the director. "Salvatore Totino, who was the first camera assistant on *Night on Earth*, gave me a beautiful old-school all-metal manual Canon Super 8 camera at the end of the shoot. I was excited about the gift, because two years earlier, a photographer shooting me for a magazine had used a Super 8 camera. He explained that he would print frames from the footage as stills; the results were incredibly beautiful."

Totino's gift was used to shoot portions of *Year of the Horse*. The film's producer and Young's longtime cinematic collaborator, Larry "L.A." Johnson, also filmed the tour in Super 8, but with a more sophisticated crystal-sync rig. (Young and Johnson have produced several films documenting the singer's career since the Seventies, including *Journey Through the Past* and the acclaimed *Rust Never Sleeps*.)

In addition to the Super 8 footage, *Year of the Horse* also features 16mm concert coverage, 16mm scenes from the band's 1976 and 1986 tours, and Hi-8 video interview sequences. The theatrical prints were made by 4MC directly from a video master that combined all of the various formats.

Despite the emphasis on grain and grunge, *Year of the Horse* contains some beautiful, dreamlike images of the road, shot with the old Canon by Jarmusch while he traveled with the band. When cut into the concert footage, often in a combination of two or more of the low-resolution images, the sequences are unusual, effective and daringly artistic. "One of my main jobs on the film was to collect a lot of little images from extraneous moments," Jarmusch says of this striking imagery. "My longtime editor, Jay Rabinowitz, and I created little sequences on a Lightworks, doing a lot of adjustments, such as speed changes."

Making any kind of film intended for theatrical release in Super 8 would have been next to impossible until fairly recently, when Super8 Sound (based in Burbank, California) began loading tiny Super 8 film cartridges with Kodak's latest negative stocks. Previously, only a limited range of Kodak reversal films were available in Super 8. "Jim Jarmusch could have used any current Kodak stock he wanted," explains



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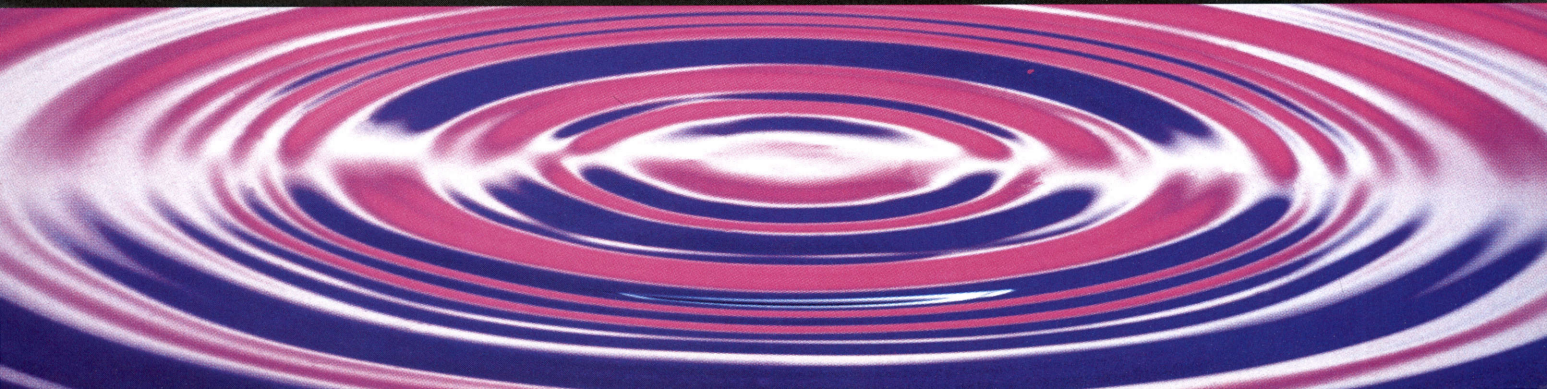

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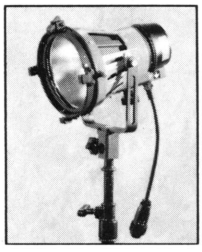
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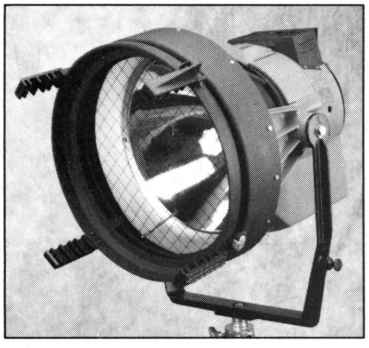
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Doug Thomas, manager of Super8 Sound. "We slit and perforate fresh Kodak 35mm stock and load it into Super 8 cartridges. They used several different stocks for *Year of the Horse,* but mostly ended up using 500 ASA 5298. They found that the Vision 500T was a little too sharp for their purposes.

"The format has come a long way in the past few years. Super 8 negative, when done right, is now very close in look to 16mm documentary-style photography of a decade or so ago. When a good cinematographer uses our gear with the Vision 200T, the results are often phenomenal."

In fact, Jarmusch actually felt that the images he captured on 98 were a little too high-quality, since he was determined to lend the film a raw, grainy look. Thomas notes, "We were asked to push more light through it on the transfer to video, to un-crush the blacks and produce more grain."

Of course, the availability of the latest 35mm stocks is only part of the game in getting sync-sound Super 8 images up on the silver screen. While Jarmusch's Canon might be a nice old camera, it was not designed for sync-sound use, though many short concert shots made with the wild-running camera were synced to the soundtrack in post and appear in the film.

For sync-sound shooting, Super8 Sound rents specially modified crystal-controlled Beaulieu 7008 Pro II cameras, which have interchangeable C-mount lens capability and are even available with video assists. According to Thomas, the company has further modified the French cameras by adding "a special microprocessor that self-calibrates the cameras each time they are started, so they run at perfectly precise Arriflex or Panavision speed-lock specs."

The 7008 Pro IIs are usually fitted with a Angenieux 6-80mm f1.2 zoom made especially for the camera. Assessing his experiences with this camera and lens thoughout the *Horse* shoot, L.A. Johnson reports that the lens is, predictably, "superb." Other professional-quality lenses are also available.

Super8 Sound, however, does not promote the format for use in making ultra-low-budget features. "Super 8 is best used for music videos, commercials and special sequences of movies shot with normal film gauges," explains Thomas. Most recently, the small gauge was utilized for the feature *Selena* (see *AC* May '97), directed by Gregory Nava and principally photographed by Ed Lachman, ASC. According to Barbara Martinez-Jitner, the second-unit director on *Selena* who shot the aforementioned Super 8 sequences, Nava is planning to include even more Super 8 in his upcoming biopic on singer Frankie Lymon. Super8 Sound is working to adapt anamorphic lenses for their 7008 Pro IIs to facilitate the transfer between film formats on the widescreen feature.

For now, Jim Jarmusch has no plans to make a narrative theatrical feature in Super 8, but he isn't ruling out the possibility. He remarks, "I want to keep working with Super 8 in some way, so that the great experiences I had, and the lessons I learned in making this film, will stay with me."

Mars Needs Photos
by Lisa Sibert

The idea of actually shooting films like *Total Recall* and *Mars Attacks!* on the nearby Red Planet might still be in the realm of science-fiction, but scientists at NASA and the Jet Propulsion Laboratory (JPL) are today busily gathering data on the life-sustaining abilities of the Martian atmosphere and surface. The Mars Pathfinder mission began with the liftoff of a Delta II-7925 launch vehicle on December 4, 1996. After seven months of travel, the spacecraft finally landed on Mars on July 4, 1997. Following its successful touchdown — complete with parachute, rocket-braking system and air-bag-cushioned crash landing — the Lander deployed the Sojourner Rover (named after African-American freedom fighter Sojourner Truth) to survey its surroundings.

Essential to this expedition are the Rover's three on-board Kodak cameras: two monochrome sensors with stereo imaging capabilities on the front, and a color imaging system in the rear. The scientists at JPL chose to use Kodak-built cameras on the Rover for several reasons, one of which was specific resolution needs. Keith Wetzel, marketing and sales manager for Kodak's Microelectronics Division, explains, "This camera's chip is 768 x 484 in terms of resolution. The ones that we've used in the past were 512 x 512, but [JPL] was looking for

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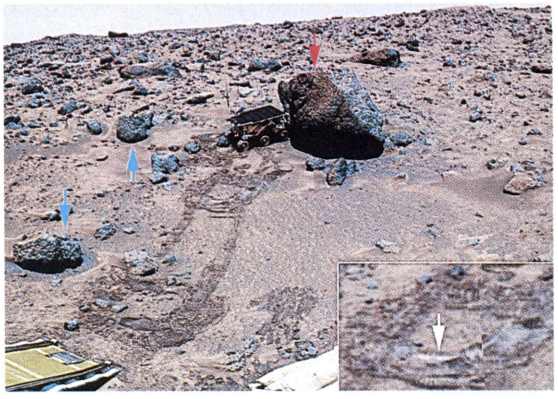

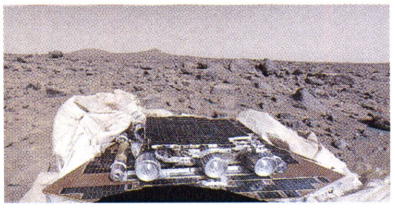

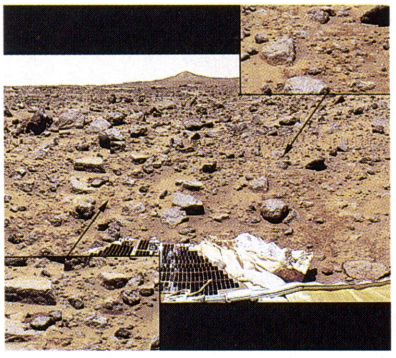

A trio of Martian vistas displaying (clockwise from left) various classes of indigenous rocks, the Sojourner Rover canvassing alien terrain and the Lander with its airbags deployed.

tive to different colors, because that's the only light that gets to the pixel itself. For instance, the physical spacing between two adjacent red pixels is greater than the spacing between two black-and-white pixels, so you lose resolution."

higher resolution with a progressive-scan architecture, which provides high-quality images when motion is involved."

The two front-mounted black-and-white cameras allow the Rover's Earthbound navigators to "see" the Martian terrain in 3-D. In addition to assisting in collision avoidance, the instruments take measurements which will lead to a better understanding of the crimson world's geology and morphology. "The two [sensors] on the front are set up and calibrated to create stereo images," explains Henry Stone, JPL's Manager of the Control and Navigation System for the Sojourner Rover. "This is useful for taking measurements of rocks: for example, you can select a point on a rock in the stereo image, figure out the coordinates of that point, and then go to the other side of the rock and figure out another point's coordinates. This information can be used to determine the physical measurement of the width of that rock."

The Rover's rear-fixed "color" sensor is a necessity in terrain study. By viewing the soil and rocks in color, the scientists can determine much about Martian mineralogy. Why, then, were color sensors not situated on the front of the vehicle as well? The drawback to color viewing is the loss of resolution: the camera being used is not a "true" color CCD, but rather a black-and-white system with an overlaid color mask. "The mask is basically like a little checkerboard of different colors," Stone explains. "Adjacent pixels become sensi-

Another factor in the choice of Kodak's image sensors is that its CCD is particularly well-designed to function in extremely cold environments. The temperature on Mars varies from a daylight high of about 0°F to a nighttime low of approximately -177°F. Such drastic drops in temperature leads to a lowering of the dark-noise current — a drainage, or noise, created within the CCD itself that gradually throws more charge into each pixel, thus corrupting the image. "However," Stone expounds, "as the CCD gets colder, the amount of charge that's introduced by the dark-noise current is reduced, so it corrupts the image less and less. Because this CCD has a very low dark-noise current to start with, and it even gets lower at lower temperatures, we can take images on Mars with very long exposure times."

This is advantageous, as the microprocessor controlling the Rover is rather slow; an image can be created gradually without fear of deterioration during download. The microprocessor can command the CCD to store images and control the portion of the particular image being downloaded, as well as adjust the speed with which it is retrieved from the CCD. As Stone further explains,

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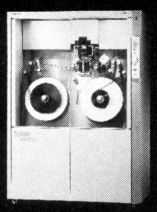

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The next step in the process is the retrieval of images from the Rover's microprocessor. After the image is pulled into the memory of the six-wheeled vehicle, it transmits that and other data to the Lander, which in turn relays all of the information to Earth. Because of the planet's rotation, the Lander can communicate with Earth only during specific times of the day. Once the Earth has risen over Mars, the Lander can transmit data via radio waves. The information reaches JPL after an approximately 11-minute delay, which is known as the one-way light time (OWLT) — the time taken by a radio wave traveling at the speed of light to make its way from Earth to Mars, or vice versa. The OWLT does vary (to a maximum of 30 minutes) as seasonal changes in the respective planets' solar orbits create differing distances between the two worlds.

At press time, both the Lander and Rover were still functioning at full capacity. The Lander has rechargeable batteries with a finite life span, while the Rover's battery packs are non-rechargeable; each is equipped with solar panels. Explains Stone, "The Lander's batteries are still capable of holding charge, but it is currently on what is called a no-battery mission: the spacecraft is no longer turned on at night, but wakes automatically in the morning when the sun comes up and then runs on solar power. It's at that point that it can communicate, receive commands and run experiments."

As this article was being written, the Rover was conducting nighttime experiments; the vehicle used battery power at night and operated via solar power during the day.

Though the Pathfinder mission was originally scheduled to last only a week, its eventual duration is difficult to determine, particularly with winter's relatively shorter daylight period on the horizon. Explains Stone, "Going through temperature variations of 100°C every day induces a lot of stress on the mechanical components and materials, and builds fatigues and cracks. It's not unlikely that the components could fail due to effects of the thermal environment."

Interestingly, NASA's two Viking landers, which both arrived on Mars in 1976, were designed to survive for just a month, but ultimately studied the planet for seven years and transmitted over 50,000 photos back to Earth. However, as Keith Wetzel at Kodak notes, "The length of the Pathfinder mission will be dictated by the number of times they can charge and recharge the batteries on the Lander — unless, of course, the Rover runs off a cliff."

New Horizons for Hollywood Camera
by Debra Kaufman

Hollywood Camera Inc. recently moved to a new $1 million facility in Burbank, California, and has expanded its camera rental business to offer production services. Also in the works, says president Serge Poupis, is a new company aimed at the development and production of feature film projects.

The company's core business, however, will still be camera rentals. With this new facility, Hollywood Camera has increased its camera rental inventory and services, while continuing to offer 16mm, 35mm, 65mm, and underwater cameras, as well as a wide selection of anamorphic and spherical lenses. In addition to stocking Arriflex equipment, Hollywood Camera is the only camera rental facility to offer the new, low-cost Russian camera system known as StarCam. "It's very affordable, lighter than the Arri and great for handholding," says Poupis. "Changing from studio to handheld mode takes five seconds."

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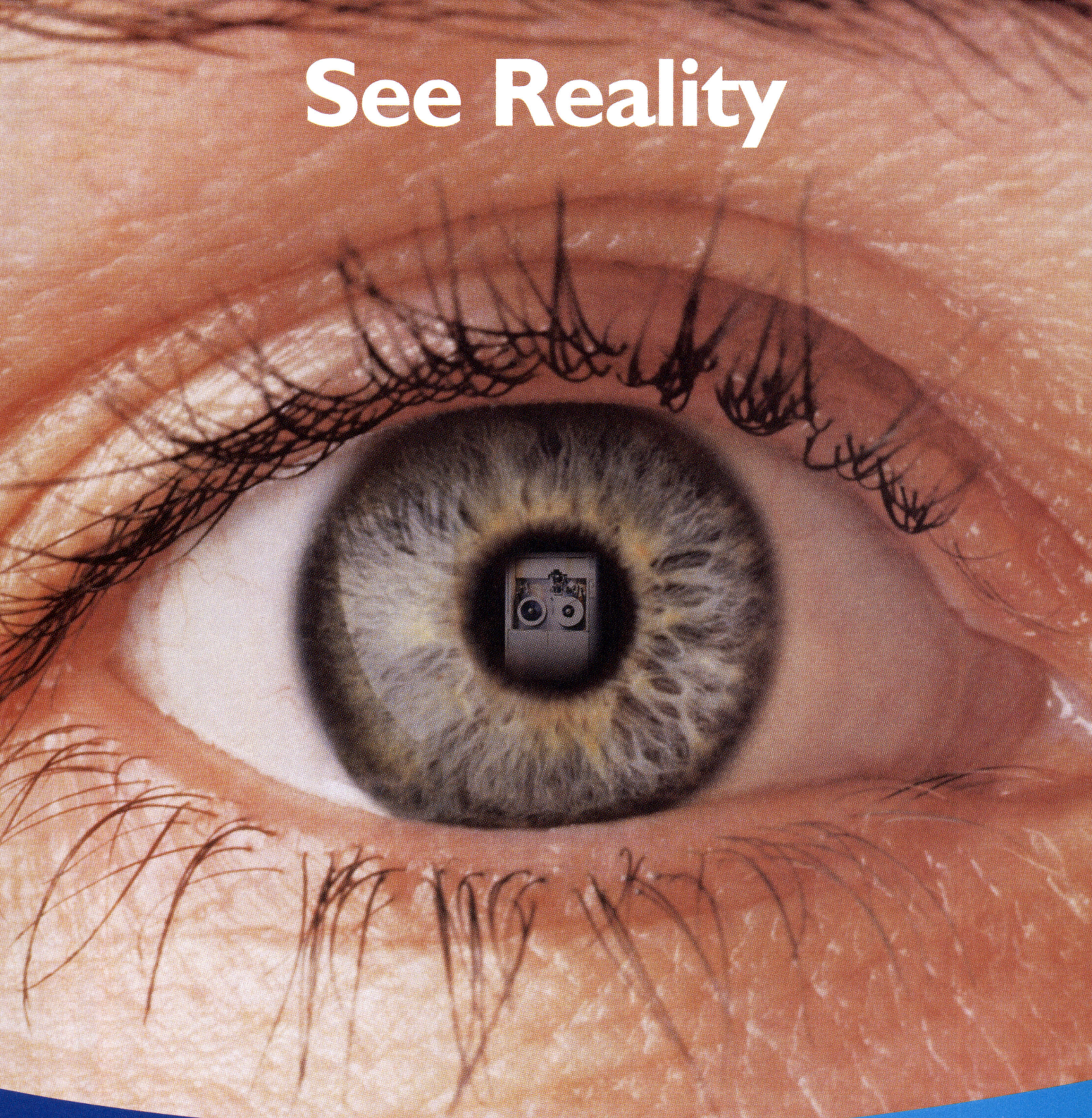

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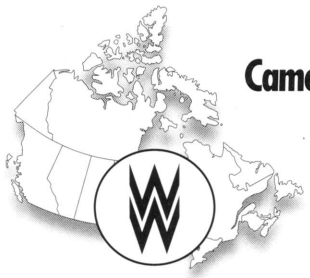

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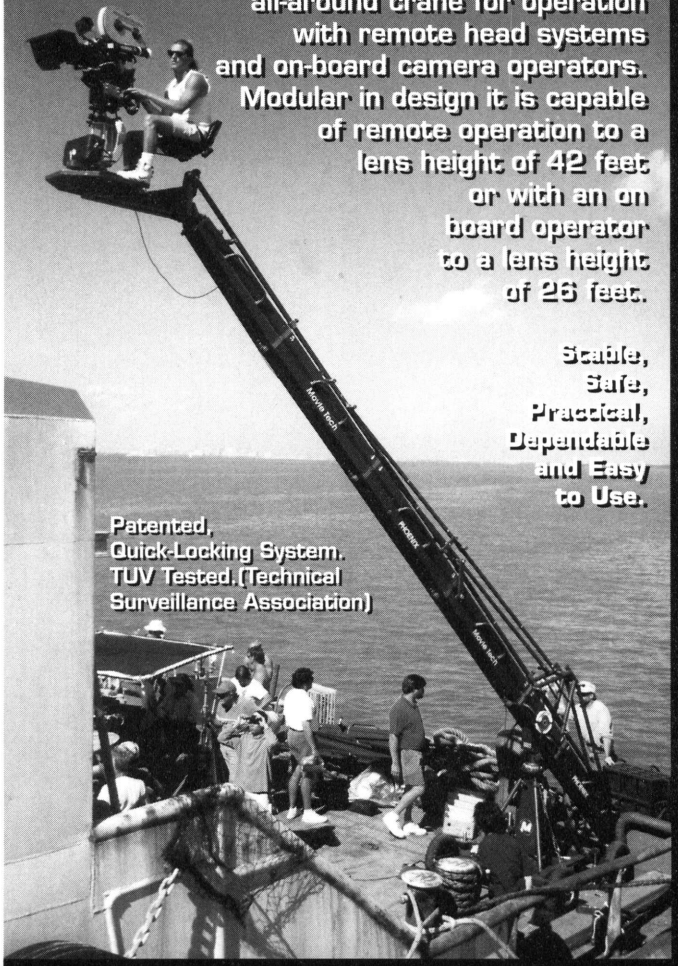

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Hollywood Camera's founders, continues to head up the repair department. Though Hollywood Camera does not stock grip or lighting equipment, operations manager Justin "Bud" Clayton says the company will assist clients in obtaining accessories.

According to Clayton, Hollywood Camera's 12,000-square-foot space makes it Los Angeles' third largest rental facility. But not all of this area is devoted to camera rental and services. The Burbank facility was formerly owned by Lightstorm Technologies, the production company of filmmaker James Cameron, and thus offers a full range of production-oriented spaces: among them are two insert stages, which Hollywood Camera is renovating for a December debut.

The main section is a fully-equipped, 30' x 35' insert stage. Hollywood Camera is soundproofing the stage's ceiling and walls with jet black Insul-quilt, and adding a lighting grid, from which blue- or greenscreen cycs can be hung. This stage will also double as a screening room for video dailies; Poupis says that motion picture theater-size speakers will be mounted to the walls, in addition to the possible installation of a front screen projection unit.

The second stage measures 30' x 25' and offers both gas lines and hot and cold water, which Poupis believes will make it ideal for staging food preparation, insert shots or pickup shots. The space can also be used for storing equipment. A full kitchen next to the stages is also available for food preparation.

Lightstorm Technologies had a gym which was utilized by Arnold Schwarznegger when the actor visited the facility. Poupis plans on retaining the gym, but he will relegate it to a portion of the large room by curtaining off the workout space; the rest of the room will be turned into production offices. Adjacent to the gym is a room with a Jacuzzi; though the hot tub will remain, the room will be transformed into a makeup area. Situated next door are a dry sauna, showers and a locker room.

On the second floor is a room with expansive windows overlooking the main stage area. Sony cameras installed in this landing will provide an overview of the stage area, and offer image transmission to large screening monitors placed throughout the facility's produc-

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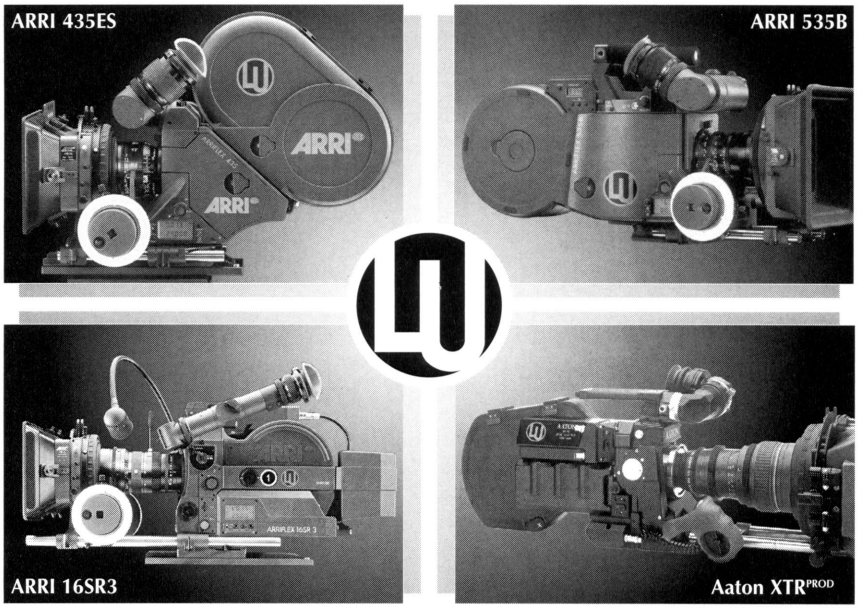

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tion offices. This room will also feature an Avid editorial system. The mechanical and optical repair department is housed upstairs, and a conference room with comfortable furniture offers facilities for meetings, with a bar area for food service.

In addition to the production offices neighboring the stages, several upstairs production offices are available for rent on a daily, weekly or monthly basis; TBJ Entertainment has already rented two of the offices. The company, which produces commercials, electronic presskits, and music videos, utilizes one office for Avid editorial and another for graphics and general production. TBJ Entertainment, which most recently produced a Backstreet Boys music video, also plans to shoot productions on the new Hollywood Camera stages.

In addition to the building's internal network of monitors, the facility is also wired for ISDN and T1 lines. Poupis says he will add Internet, videoconferencing and digital networking in the near future.

The new Hollywood Camera facility is a marked change from the company's home of the last seven years. Though Poupis founded Hollywood Camera in 1991 with his wife, Nicki, and cameraman Anatoly Taldykin, the story of Hollywood Camera began when Poupis' landed a job as an assistant film editor at 20th Century Fox, New York; Poupis soon realized that he'd much rather be on a set than cutting the images which were filmed there. He relocated to Hollywood and trained for free on the set of the TV series *Happy Days* with 2nd AC Joe Valdez. That eventually led to a union job and his entry into Local 659 (now 600). A camera assistant/operator for 17 years, Poupis has worked on numerous features and television shows, including *Dynasty*, *The Love Boat* and *Police Woman*.

Ambitious and restless, Poupis purchased two Arri cameras — BL and III models — figuring that the equipment would help promote his career as an assistant. The gamble soon paid off, and he scored a gig to go to Moscow with cinematographer Yuri Neyman to film Largo Entertainment's *Back to the USSR*. With heavy medical bills for his handicapped son providing another impetus, Poupis plowed his profits into more equipment and entered the rental business in earnest. His old friend

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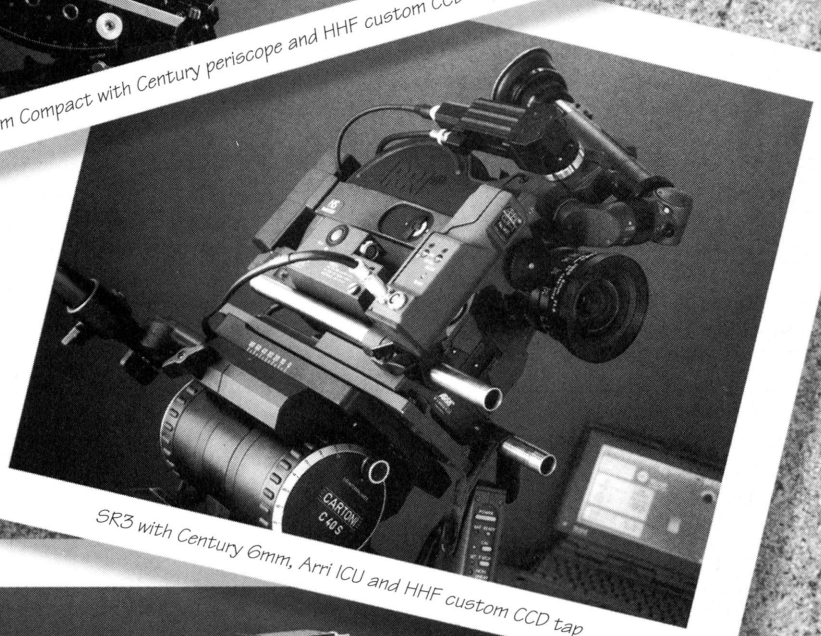

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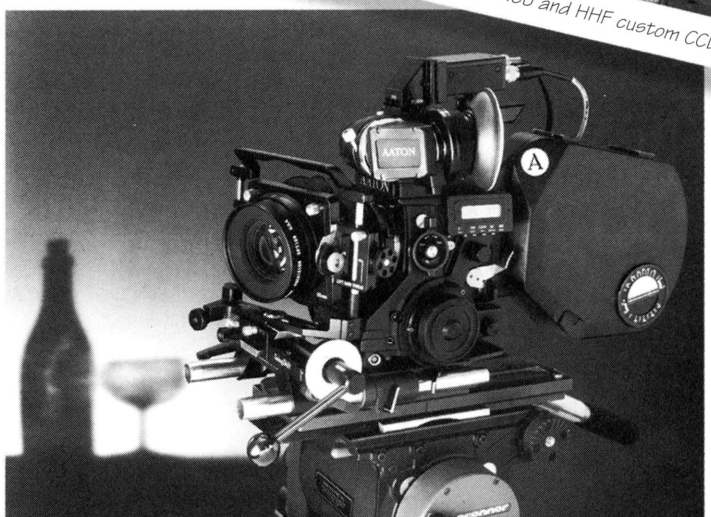

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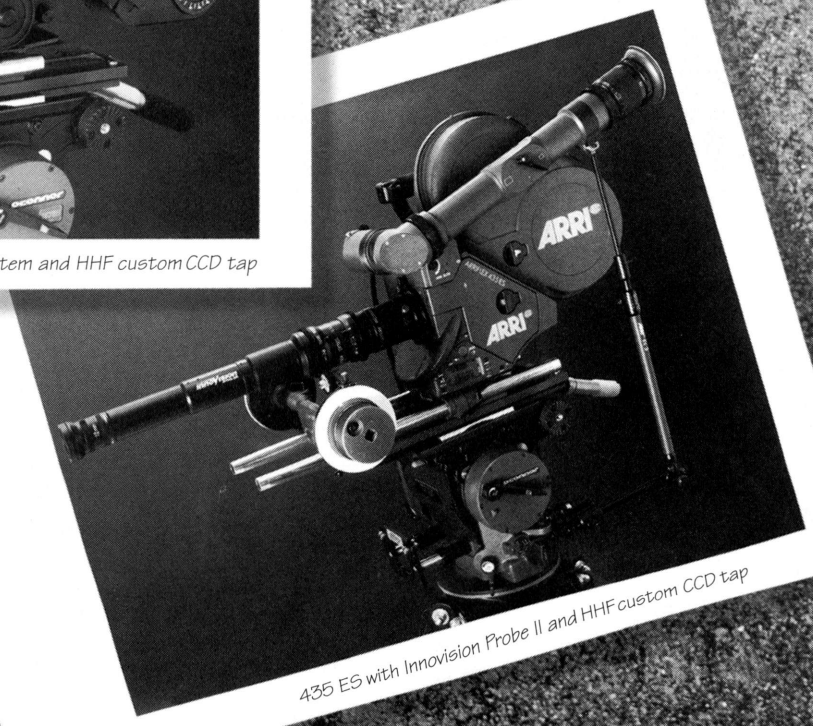

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Clayton devised the name Hollywood Camera and the company was launched in the summer of 1991.

Hollywood Camera quickly prospered. The company has provided camera packages for numerous television shows, including the syndicated series *Renegade*, *Silk Stalkings*, and *Acapulco Heat*, as well as PM Entertainment's feature films *Recoil* and *The Protector*. Three years ago, Serge's brother, John T. Poupis, left a corporate job at Marriott to join the firm as vice-president in charge of finances. Two years ago, Clayton became Hollywood Camera's operations manager.

The company's outgrowth of their original garage prompted the move to the new Burbank facilities. Perhaps less obviously, they had also overwhelmed the old definition of Hollywood Camera. In addition to adding production facilities to the camera rental brew, Poupis decided to reach out to new markets — most notably commercial production — for the company's production and camera rental capabilities. His greater aspiration, one that has been simmering for many years, is to open his own entertainment production company. Amid the search for the new company's name, the framework is being readied for the making of feature film. Clayton, who has published numerous magazine articles on film topics as disparate as Marilyn Monroe and the making of *King Kong*, is now soliciting scripts, while Poupis is in deal discussions with his wide community of filmmaking contacts. In the words of both, the first film property affiliated with Hollywood Camera must be one "of substance and feeling." Admits Poupis, "I've missed production, and producers are always saying to me, Let's do something together. It's a big step, but I always take big steps."

Hollywood Camera Inc., (818) 972-5000, fax (818) 972-5010; 3100 Damon Way, Burbank, CA 91305; e-mail: rentals@hollywoodcamera.com; and the Website is www.hollywood camera.com, where visitors can use interactive forms to submit bid requests.

Sixth Annual Roy W. Dean Grant Awards

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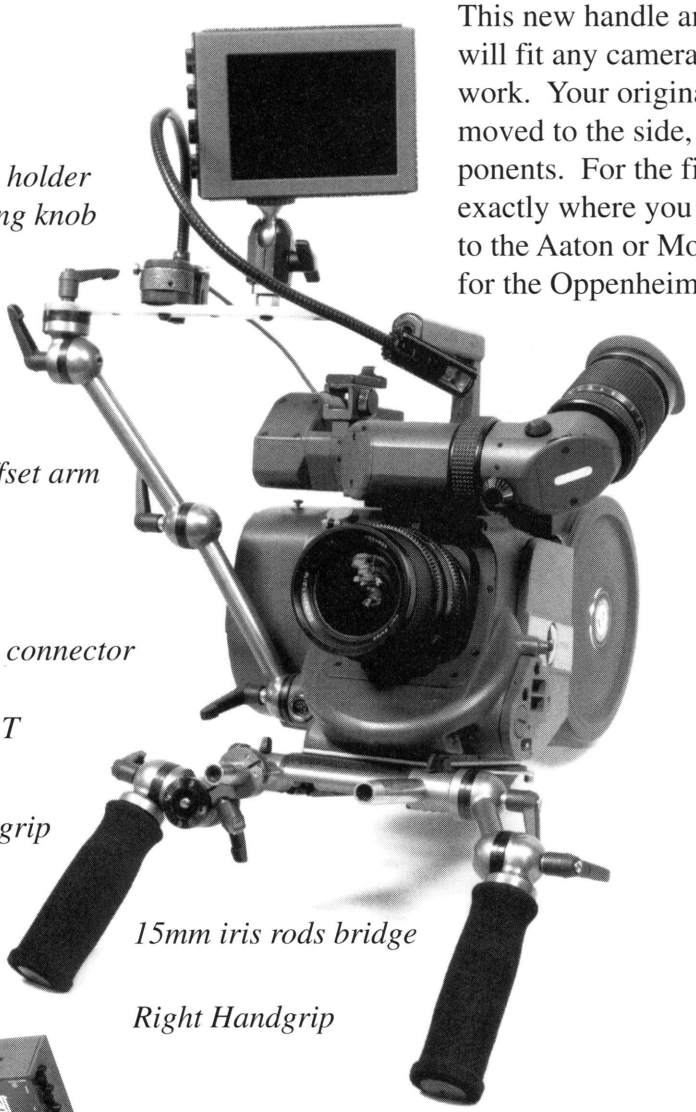

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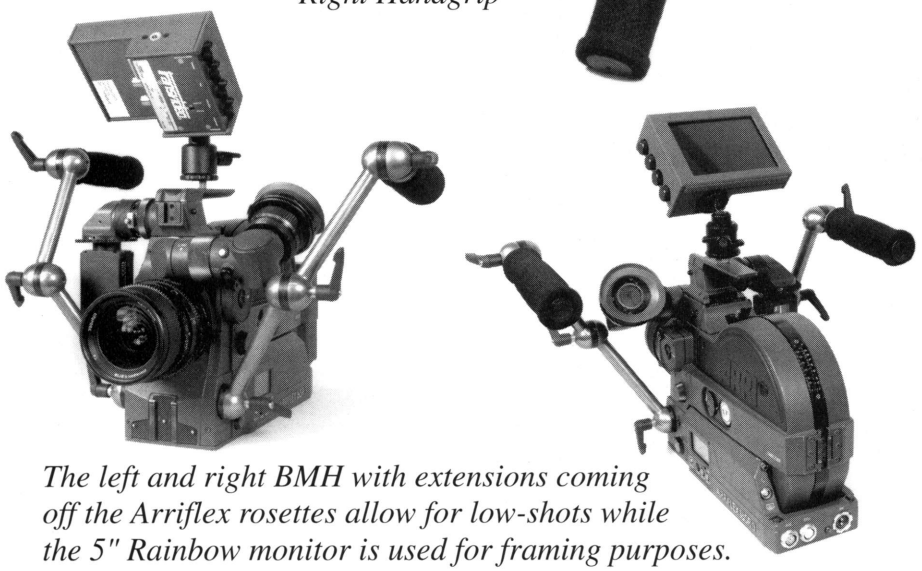

The left and right BMH with extensions coming off the Arriflex rosettes allow for low-shots while the 5" Rainbow monitor is used for framing purposes.

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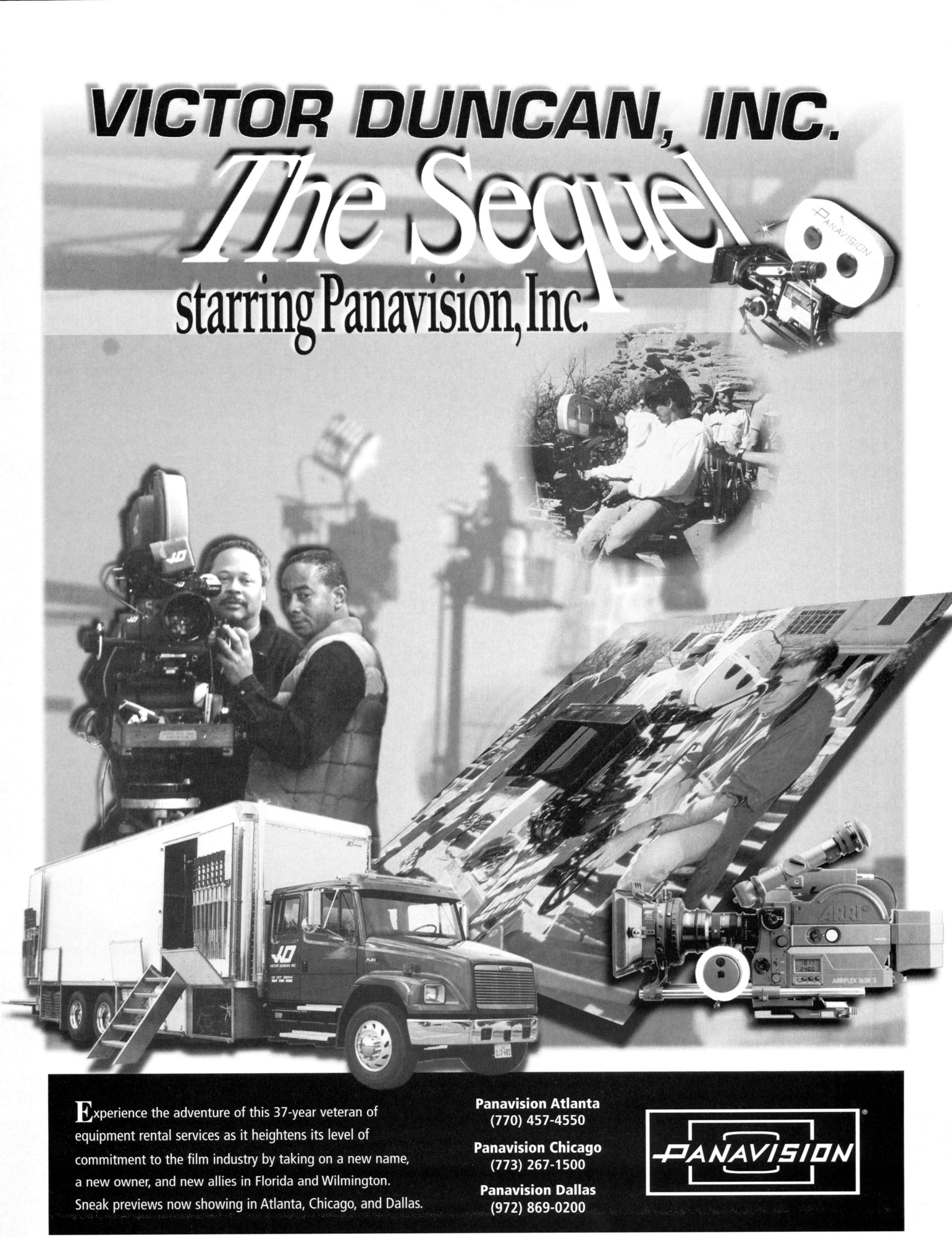
Guild in Los Angeles. Opening the evening was Ed Asner's impassioned speech about the impact documentary films have in made in demonstrating truth, giving society the opportunity to see mistakes and make improvements. Robert Townsend, who presented awards along with Corey Feldman, gave his Tenacity Award to Lee Lew Lee for his award-winning documentary *All Power to the People*. Lee had previously won the 1995 Roy W. Dean Film Grant, which enabled him to proceed with this chronicle of the rise and fall of the Black Panthers Party.

Earning this year's Film Grant were Mark Mori and Douglas Miller for *Death from Above, The Evolution of Modern War*, this project, which is to be narrated by Paul Newman, will delve into civilian targets being bombed and categorized as "strategic bombing" targets, and uncover hidden statistics regarding actual deathtolls created by bombings of non-military targets. Runners-up for the film award won gift certificates for raw film stock, and included Jilann Spitzmiller and Hank Rogerson for *Homeland*, Lester and Lavaniel Griffen for *Voices*, Gail Willumsen and Jill Shinefield for *Women Below the Line*, and Greg DeHart for *The Tarahumara Indians of the Sierra Madre*.

Winners of the Video Grant, which is worth more than $40,000 in good and services, were Carole Ann Shine, Adam Fratto and Robert C. Winn for *At The Crossroads: Women Leaders of Hong Kong*, which documents the challenge faced by Hong Kong's female leaders before, during and after the recent handover to the Chinese. Runners-up for the video prize received video stock gift certificates, and included Renee Bergen for *Fashion Slaves* and Marty Nuun for *100 Years in the Black Belt: Springtree School for the Arts*.

The Roy W. Dean Film Grants were created by Carole Lee Dean, owner/founder of Studio Film & Tape (L.A., Chicago, and New York) in honor of her late father. Two additional awards are bestowed yearly in Chicago and New York. For further information about scholarship and sponsorship opportunities, call (213) 769-0900, ext. 864, or access the program's website (www.sftweb.com). ◆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Malevolent Mutations

Director Jean-Pierre Jeunet and cinematographer Darius Khondji, AFC revisit infamous extraterrestrial enemies in *Alien Resurrection*.

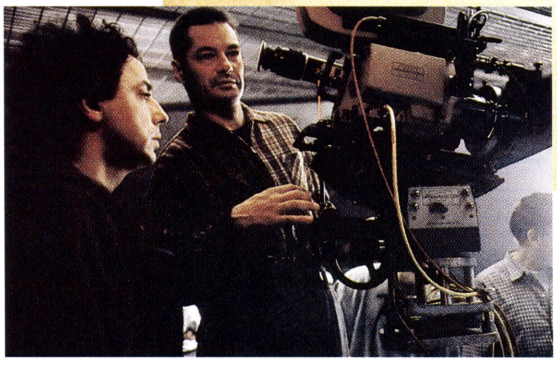
by Christopher Probst

Photos by Suzanne Tenner, courtesy of 20th Century Fox.

In the summer of 1979, an ominous decree (*"In space, no one can hear you scream..."*) was issued to legions of unsuspecting moviegoers. Skillfully directed by Ridley Scott and photographed by Derek Vanlint, *Alien* became an instant genre classic whose novel look influenced a score of imitators. The film's menacing, claustrophobic atmosphere, nightmarish bio-mechanical alien creatures (designed by Swiss surrealist H.R. Giger), and haunting visuals tapped directly into the terror-regions of the human psyche. Writer/director James Cameron and cameraman Adrian Biddle, BSC then conspired on *Aliens*, a high-energy 1986 sequel which redefined the original film's shock-appeal with swarms of the insect-like xenomorphs. Six years later, director David Fincher and cinematographer Alex Thomson, BSC crafted the stylishly nihilistic *Alien*^{3}, in which the series' much-beleaguered heroine, Lt. Ellen Ripley (Sigourney Weaver), was finally bested by her devilish tormentors: implanted with an alien embryo, she made a suicidal leap into a vat of molten lead in the film's self-sacrificial climax.

In killing off this popular protagonist, 20th Century Fox left itself with something of a predicament for further sequels. However, *Alien Resurrection* screenwriter Joss Whedon provided a viable narrative solution: reincarnate Ripley and her demons by cloning surviving samples of her alien-tainted DNA. This unholy genetic intermixture produces a reborn Ripley and an exotic array of fiendish extraterrestrials — bonded by their shared bloodline. From there, all hell breaks loose.

Helming *Alien Resurrection* is French director Jean-Pierre Jeunet, who created the dark, acclaimed fantasies *Delicatessen* and *The City of Lost Children* with filmmaking partner Marc Caro. "There are several aspects of this picture that are similar to my other movies," remarks Jeunet. "In fact, in filming some shots for *Alien Resurrection*, I realized that I had composed similar ones in both *Delicatessen* and *The City of Lost Children*. However, this film represents the first time I've directed a film that I haven't written, *and* it is a sequel, so I wanted to respect the spirit of the previous pictures. That was very important to me."



Jeunet took an interest in cinema at an early age. After leaving school at 17 and going to work at a telephone company, he bought a Super 8 camera and began making short animated films. After four years of creative experimentation tempered by professional monotony, he relocated to Paris and later met cartoonist Marc Caro. The duo began their collaboration with the animated short *The Escape*; their second short, *The Merry-Go-Round*, earned a 1981 César Award, the Gallic equivalent of an Academy Award. They quickly followed up with the 28-minute, black-and-white short *The Last Burst Bunker*, which took a year to make as Jeunet served as co-writer and co-director (with Caro), cinematographer, producer, editor, sound cutter and negative cutter. *Bunker* would go on to play for five years at a Parisian theater on a Saturday midnight double-bill with David Lynch's *Eraserhead*. These shorts launched Jeunet's entry into the realm of commercials and music

Inset: ***Director Jean-Pierre Jeunet (R) and cameraman Darius Khondji, AFC align a shot. In preparing for his first U.S. feature, Jeunet viewed several action films and made a rather odd observation. "I had two or three big action scenes on* Alien Resurrection, *so I counted the number of shots in several American action films. What is funny is that they were always between 115 and 120 shots! I also looked at some laserdiscs with underwater scenes, like* The Abyss, *to study the problems that they had with underwater filming."***

videos — culminating in his feature debut, *Delicatessen*.

On *Alien Resurrection*, his first U.S. studio feature, Jeunet could think of no other cinematographer with whom he'd rather work than Darius Khondji, AFC, who had photographed both of the director's previous films. "At the beginning," reveals the director, "I thought this film would be too difficult for me. It was my goal just to survive Hollywood and make the film, because for a French director, making a film in Hollywood is a dream and a nightmare at the same time! So it was very reassuring for me to work with Darius. After I started work on *Alien*, though, I discovered that [making a major American studio picture] involved pretty much the same procedures that I had used in France."

"I was lucky on this picture to be hired very early on in preproduction," Khondji says. "I started preparation 12 weeks before principal photography, which is very unique. Some of the design drawings were already done, but I saw most of the drawings coming out in the preproduction. Jean-Pierre and I worked very closely with production designer Nigel Phelps (*Judge Dredd*), and I think he's really the genius of this movie — his designs gave the film an incredible and very special look."

Khondji and Phelps soon began a series of photographic tests to devise the film's look and color palette. As in all of his prior work, the cinematographer knew that he would be incorporating some form of contrast-enhancement process in the lab to craft the emulsion's latitude to his liking, based on his response to the film's story and characters. The tests would determine which type of process would be used, and to what extent. "I don't

Ripley (Sigourney Weaver) reassures Call (Winona Ryder). Says Khondji, "There is almost a surreal beauty to our two main stars; they almost generate their own lighting."

Above: ***A devilish duo wreak havoc. "With all of the alien goo everywhere, we were dealing with the reflections," says key grip Alan Rawlins. "We would have several single Kino Flo bulbs in the strangest configurations around the aliens. But, of course, they were then sending light elsewhere on the set. We had to mask that spill [light] off by placing paper tape up and down the Kino Flo tubes to direct the light — basically taking that round, soft light and making it a directional light."***

Right: ***Call is inspected by the film's frightening new abomination, the "Newborn."***

think I've ever done so many tests for a film before," relates Khondji. "I experiment a lot during the testing, so I try to get the lab's participation very early on in the production. I also like to have the lab people read the script. I always view my work as a group effort, and I feel it's important to think of my position as perhaps the director of an orchestra. Within that philosophy, I think of the lab as almost an art director of the processing chemistry, and my color timer, Yvan Lucas, as another art director working with the printing.

"In my tests, I try to damage the negative as much as I possibly can — underexposing and overexposing it. The people in the lab call me the 'Dracula' of the negative because I like to destroy it. From the ashes comes something new, and I sometimes find very strange imagery that I never would have been aware of if I hadn't gone through the tests. For example, by overexposing by three stops, you may be actually exposing something at key that would normally be very underexposed."

Through his tests, Khondji determined that he would be incorporating Technicolor's ENR process — which he had recently utilized to great effect on *Evita* (see *AC* Jan. '97) — and Eastman Kodak EXR 5293 and Vision 500T 5279 stocks. He gradually used more and more of the 79 as shooting continued, until he was exclusively using the high-speed emulsion. Knowing the ENR process would

dramatically deepen his blacks, Khondji utilized a Panaflasher during certain low-light sequences to add detail in the shadows, often simultaneously adding color with warm gels inserted in the device's filter holder.

The cameraman employed Panavision Platinum cameras (as well as an Aaton 35-III with a Panavision mount for handheld work) with Primo standard and close-focusing primes. He and Jeunet opted to shoot the film in the 2.35:1 Super 35 format, as he had done previously on *Seven* (*AC* Oct. '95). "I chose Super 35 not due to lighting issues [spherical lenses are faster], but because I wanted to be able to get dynamic movement and certain camera angles," Khondji submits. "Jean-Pierre wanted the freedom to come in very close to an actor's face with the camera, as he had on his previous two films. With anamorphic lenses, you can't get that close in the same shot, because they tend to deform the actor's face. This was not an issue with spherical lenses. Jean-Pierre likes to place the actors in the frame in a way that creates tension, and often makes them enter at certain cross-angles so that they appear suddenly. He's a very big fan of Sergio Leone and of the way he framed his 'scope films; Leone's work has been a primary inspiration for all of Jean-Pierre's films."

"For me," reveals Jeunet, "*Once Upon A Time in the West* was a revelation. I was 15 when I first saw it, and I could not even talk for three days afterward. My parents kept asking, 'What's the matter, are you sick?' But I could only raise my hand as if to say, 'Don't talk, don't talk!' The second film that affected me that way was *A Clockwork Orange*, which I saw in the theater 40 times. My background is in animation, and Marc Caro was a comics designer. In a way, we were somewhat like Terry Gilliam in our visual sensibilities on the two French films we did together. We like pictures and compositions. I can't imagine doing a film without paying attention to composition. It's by instinct, I don't think about it. If I think a shot is ugly, I throw it in the garbage in the editing room. Even though I did *Alien Resurrection* without Marc, I think this film is very close to our movies in terms of its [visual] aesthetics."

With the myriad consider-

ations involved in mounting a huge special effects-laden, sci-fi/action film — not to mention the struggle of communicating with a mostly American crew in his modest English — Jeunet decided to storyboard the entire picture to give everyone a visual basis from which to work. As Khondji explains, "Working with Jean-Pierre, you really do use the storyboards, although he doesn't want them treated like a literal bible. He wants the crew to imagine *beyond* the storyboards. There are elements regarding the sets, props and costumes that are not exactly described or even mentioned in the storyboards. But we'd use them for the framing of shots, because he has very definite ideas about how he wants the shot to be framed and which [aspects of the story] you need to tell with the frame."

Special care was also taken in designing any shots involving the aliens. "Jean-Pierre rehearsed everything that involved them with a video camera masked to a 2.35:1 format — all of the aliens' positions and movement," Khondji recalls. "Everything was planned beforehand to try to film them in a different way. Watching him work with the alien creatures — long before principal photography even began — made me think of a choreographer working with dancers."

"To save time on the set, I did all of the rehearsals with Pitof, the visual effects supervisor," Jeunet elaborates. "I then made a video print of every shot and had them in a notebook. It's very difficult to shoot a man in a suit and make it convincing. If you move a little bit too low or too high, it's a man in a suit — it's not an alien. This strategy was also a great help because Pitof directed many of the alien scenes for the second unit with [A-camera operator/second-unit cinematographer] Connie Hall, Jr."

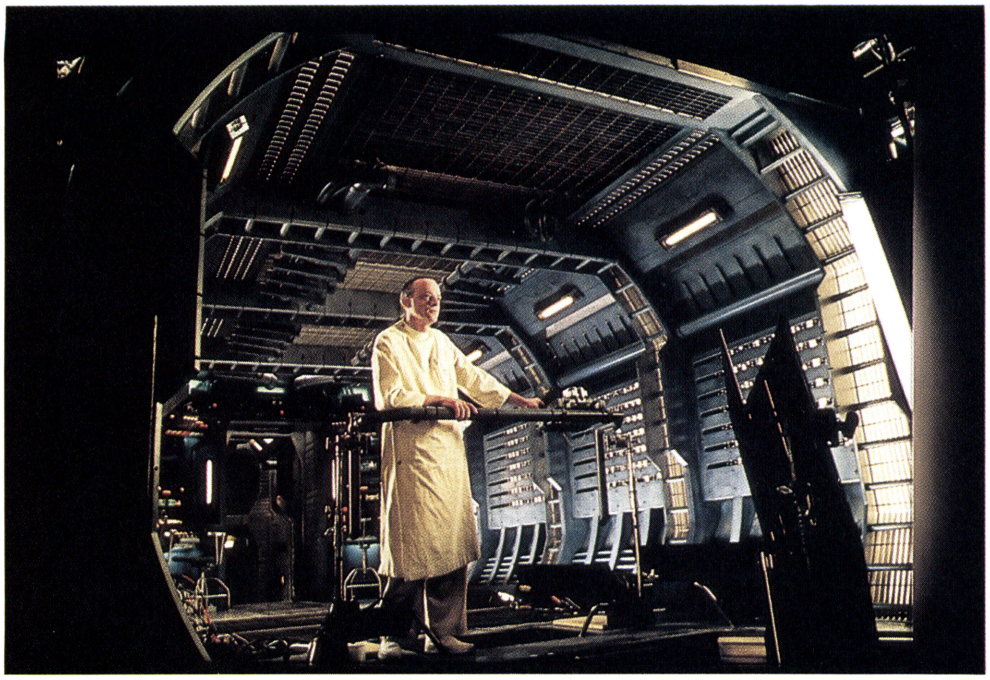
During of their preparation, Khondji and Jeunet thoroughly reviewed the previous *Alien* films to gather insights into how their predecessors approached their respective entries in the series. The duo also consulted many other science-fiction and horror film classics. "Jean-Pierre and I watched an incredible number of films," says Khondji. "I was actually very interested in B-movies, especially the science-fiction films of the Fifties. Although they're not always well-done, they can be almost haunting. That element was very important to me for *Alien Resurrection*, because I wanted the film to feel haunted. I wanted the sets and the ship to be haunted by the evilness of the characters within them.

"I also liked doing the gore effects in the film, but I don't like lighting them and making them too obvious. I love it when things are really horrible but backlit, dark and silhouetted. Then the imagery is more a product of the audience's imagination rather than what is on the screen. I find that people can imagine much more than you can ever get on a negative, and you free people's imagination by *not* showing them certain things. That's a very important aspect of all of my work in general. I don't make the imagery dark just out of the pleasure of making it look good; in a way, [by keeping aspects of the imagery obscured], I give the audience something more to look at."

Alien Resurrection takes place entirely in outer space on two crafts: the *Auriga*, a massive and brooding space station aboard which Ripley and the aliens are experimented upon; and the *Betty*, a small, brightly colored renegade ship used by smugglers who board the station. Designed by Phelps, the often-cavernous sets depicting the interiors of these two vessels were realized on the Fox soundstages in Culver City.

In determining a lighting approach for the futuristic locales, which primarily consisted of seemingly endless corridors, Jeunet, Khondji and Phelps worked in tandem to integrate as much lighting as possible into the set design, often employing glowing panels behind built-in gratings and cosmetically enhanced Kino Flo fixtures built into walls and ceilings. Notes Khondji of this approach, "Nigel [Phelps] built the lighting into the structures so that it followed the contours of the sets, almost as if the lighting were etched or engraved into the design. The set's [inte-

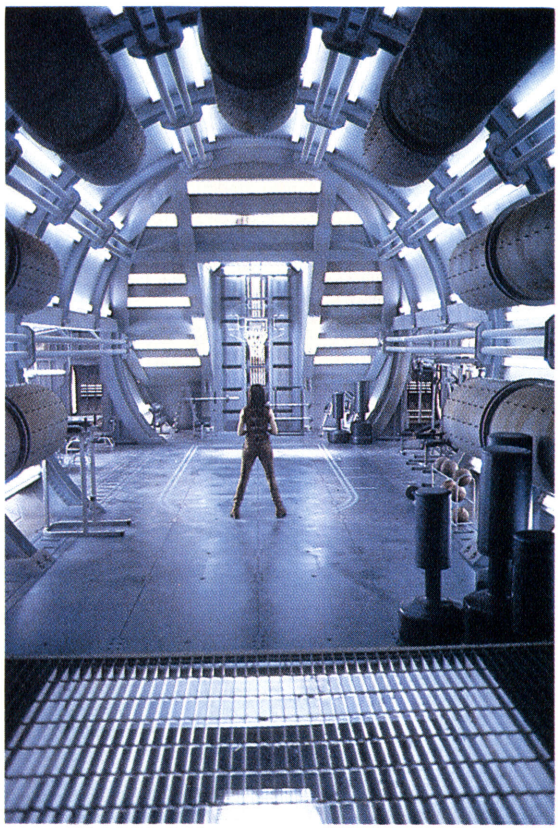
Top: ***Pursued underwater, Johner (Ron Perlman) lays waste to the now-amphibious space creatures. Khondji tried to control the degree of visibility within the water by adding paint.*** **Bottom:** ***The crew of the*** **Betty** ***explores one of the many labyrinthine corridors featured in the film. Says Khondji, "Hard lighting was only used to light the sets themselves. I only used soft lighting in a contrasted direction to light the actors. Hard lighting, in combination with ENR, makes things look very vivid, very sharp."***



Above: ***A clear view of Khondji's intricate, built-in lighting approach. He notes his aversion to fill lighting. "Rather than adding fill, I would light various parts of the set — due to the ENR process — closer to key; maybe a stop or a stop-and-a-half under depending upon the details I wanted to draw out."***
Right: ***Ripley on the rec-room's basketball court. Says Rawlins, "As they were building the gymnasium set, we worked out our lighting so that we had enough ambient light to enable Jean-Pierre to show the entire set in frame."***

grated] lighting made it appear as if it were a living, breathing creature. On wide shots, it almost looked as if we were inside some cavernous animal or dinosaur. The sets became characters in themselves."

Adds gaffer Chris Strong, who helped Khondji illuminate *Seven*, "To be able to see and photograph the sets, the majority of the floors were made of metal grating backed with Lee 129 Heavy Frost diffusion and quarter CTB, with 2K nook lights hidden underneath. We had about 250 of them on the main set alone, all tied into a dimmer board. The ceiling was also grating backed with diffusion, behind which we had hundreds of bat strips — strips of wood with porcelain sockets and 211 PH bulbs — which were also tied to the dimmer. For high ceilings, we used chicken coops and 10-light cyc-strips for more punch. The set walls also had ribs — periodic panels behind the grating — that went around some of the hallways, which were lit from behind with 211s on bat strips. We also had clear 60-watt Lumaline bulbs [16" clear tubes visibly mounted on the walls] periodically built into the set walls down the big corridors. They were dimmed way down to just a glowing filament as a design element. Every

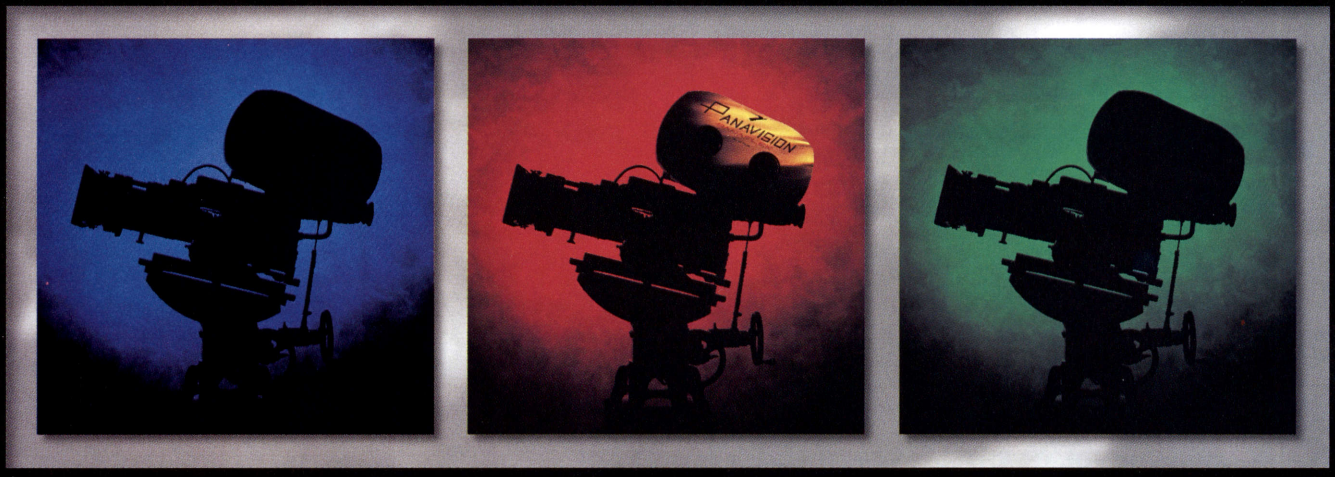


light was individually dimmable, and we had about 550 different dimmer leads on the main hallway set alone.

"In some of the hallways, we had Kino Flo tubes running underneath the base edges of the grated floors. We didn't dim the Kino tubes on a dimmer channel, but we'd sometimes throw some neutral-density gel on them or use streaks and tips to knock them down a bit."

With the majority of the lighting provided by these built-in practicals, Khondji would then supplement light on the actors with more controlled, modeled sources, using individually set Kino Flo units. "The whole look of the film can be viewed as a blending of design and lighting," expounds the cameraman. "The production thought we were spending too much money building the lighting into the sets. Perhaps it was unusual to work that way, but it gave us a lot of freedom to move about and work very quickly between setups. In fact, we could make a set look like a completely different set just by a change in the built-in lighting scheme. Chris Strong would adjust a few channels on the dimmers, turning a high-key set into a low-key set. We'd then wet the set down, make it oily or gritty, and add smoke; it would become a completely different place, but with an almost subconscious suggestion of a place we've been before.

"We came up with a lot of different lighting schemes so that viewers wouldn't be able to tell that they'd been in the same hallway 15 times," Strong details. "We'd often take the diffusion paper out from under the floor at the edges, so we'd get hard shafts going up the walls and still have soft light underneath the actors. We had a video tap monitor in the dimmer room so that the dimmer operator could see exactly what was happening on the set. Then, for every slate number shot, he'd enter the exact lighting settings for each take



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Freed from the twisted probing of the* Auriga*'s scientists, an alien queen quickly sets up shop and begins infesting the space station with swarms of terrifying beasties. Describing the alien hive set, gaffer Chris Strong says, "We had several Par cans shooting straight down into the set just to highlight and edge the pillars [which had Kino tubes behind them leaking some light around the sides], the cocoons and the queen. There was also a hole in the ceiling which was lit with three space lights shooting through diffusion that provided a little overall ambiance, but we really didn't use much of it because it had the tendency to wash everything out."

into the board's memory. With the exception of any lights we had on stands on set, every light setting could be exactly recalled for any given shot. We did use some incandescent light on the sets, but not much. Darius preferred the Kino Flo look."

Khondji adds, "Topping all of that off was the use of the ENR process. It was like cooking — you put in all of these different ingredients and make this sort of weird witch's brew that becomes the look of your film."

Executing such a high level of lighting/production design integration required the filmmakers to utilize a full-time rigging crew to install and wire the vast network of sources and cables before the main unit would walk onto a set. Explains key grip Alan Rawlins, "Even with the large stages we had at Fox, our main concern from the beginning was that we were very cramped and fighting for space for the rigging. With the bulk of our lighting coming from underneath, from above, or from the sides of the sets, it became quite a feat just to keep everything separated and find space for it while making it all work together. We also utilized a lot of little pieces of the sets that were actually working as rigging or built-in lighting apparati. Chris Strong and I — as well as rigging gaffer Bill McKane and rigging key grip Bob Leitelt — put a lot of thought into this to achieve the look and stay functional enough to be able to pull the project off. Bob and Bill were definitely our right and left hands in terms of keeping us prepped ahead of time. When we'd walk off one set and onto another, the rigging crew would have done a fantastic job and we'd only have to make a few minor changes to be off and running."

Taking full advantage of the versatility that the dimmer-controlled lighting offered the production, Jeunet and Khondji mapped out a visual flowchart that detailed how the lighting should transform to reflect the film's increasingly intense narrative. The cinematographer explains, "We established a scale from one to five; it began with almost no lighting effects or movement, and became complete lighting chaos. The lighting got a little stronger in levels two and three with some flashing and warning lights. Level four was a more frantic state of alarm, with strobe-lighting and gyrating sirens. By level five, everything was a complete frenzy of lighting and camera vibration — going to an almost completely blurred image due to all of the shaking."

"The lighting was 'normal' up until the point when the aliens escape," expands Strong. "At first, we'd just have flashing red lights. Then we'd add panning Xenons and these strobe lights on the tops and bottoms of the hallways. The strobes were four-foot tubes with several small daylight-balanced lights inside and down the length of them. We then could strobe in sequence either at us or away from us. We also had steam, smoke, sparks, cracked oil, liquid nitrogen, and wind effects for added visual energy — you name it, we had it."

Given Jeunet's affinity for wide-angle lenses, it's not surprising that Khondji chose to build his lighting into the sets when possible. With masters being photographed on 14.5mm, 17.5mm and 21mm lenses, virtually the entire set could be visible in any scene. "I love using short lenses," Jeunet confesses. "On this film, for the first time, I did use some slightly

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Clamping Down on *Alien Resurrection*

Key grip Alan Rawlins lends firm hand to sci-fi thriller.

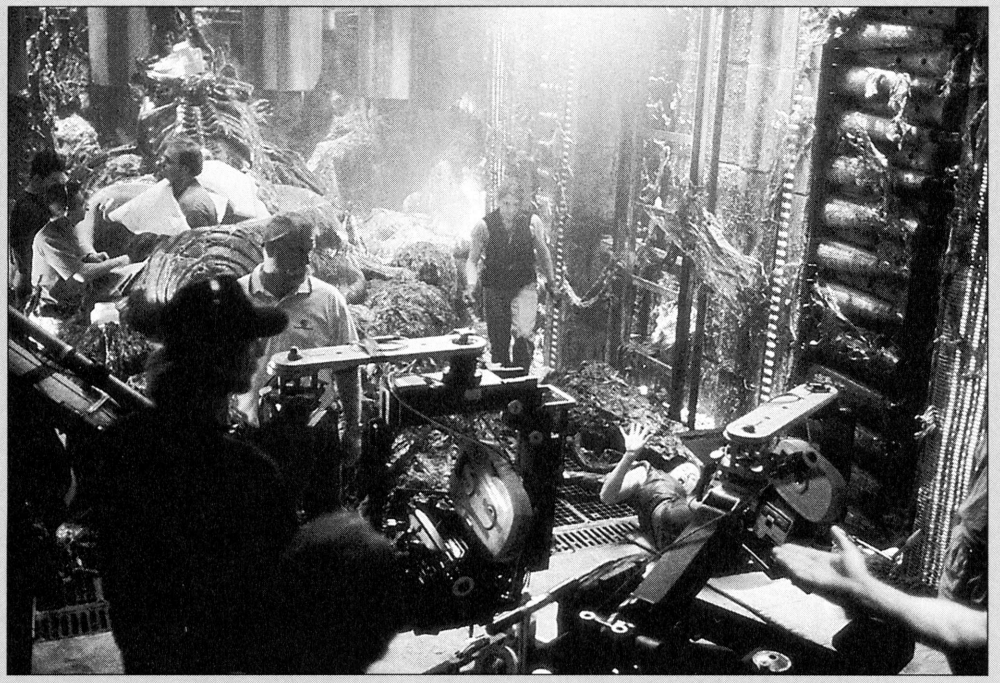
With his strong Southern accent, Atlanta-based key grip Alan Rawlins could probably sweet-talk himself out of any sticky situation. But that's par for the course for someone who routinely solves a thousand production headaches a day on the set. "The grip department is the support department for every other department on the show," Rawlins maintains. "Half of the time the wardrobe department can't even hang up their extra clothes without coming to get a stand from the grip department. *On Alien Resurrection*, for example, Tom Woodruff of ADI, who was wearing the alien costume, needed to rest between takes. He would set the heavy alien head on a rig — consisting of two C-stands and two paper towel rolls — to take the pressure off his neck, because they didn't want to take the head off and then have to pinch the alien's skin back together after every take. In the course of the day, the grip department generally helps out every department on the set, but that's our job. I tell my boys at the beginning of each show that we're there to do whatever has to be done. We'll help any of the departments if they need it. We won't do their work for them, but we'll pitch in when they need us. I'll basically do whatever it takes to keep the camera rolling."

On *Alien Resurrection*, the crew had the added burden of staging complex sequences involving on-set physical effects elements and creature effects while shooting with the director's favored wide-angle lenses. "We worked with the creature effects crew a great deal on some of their moveable aliens," Rawlins relates. "Of course, they had their own puppeteers, operators and technicians, but one of their aliens was mounted on one of our cranes. We actually redesigned the floor and walls of one of the sets so that we could move the crane around within the set. We removed a whole middle section of the floor which had a track that the 'creature crane' — as we called it — rolled up onto. We then replaced some of the floor panels around it so that we would see only what we wanted to see. It was a coordinated effort between my department and the ADI creature department."

Asked to define the term "grip," Rawlins offers, "Whenever somebody asks me what a grip is, I tell them a grip is someone who thinks with his hands. A key grip has to be a jack of all trades. Obviously I'm a little prejudiced, but I think the key grip is one of the most important people on the set. The key grip takes the cinematographer's ideas, the gaffer's ideas, and the director's ideas and combines those into something that can physically be done. When you're talking to three people, though, you might have three different ideas. The director may want to move the camera in a certain way, and the cinematographer and gaffer may want to light the scene in a way that doesn't necessarily coincide with that idea. You basically have to consider the effect that they're looking to achieve, and assimilate the ideas so that all of those people get what they're looking for. You might have to make a few changes here and there, or come up with something on the spur of the moment if a shot they had planned doesn't work. It may not be working because of one element that's in the frame, which means that I'll have to figure out a way to make that element more unobtrusive. I may say to myself, 'Well, if I levitate this thing we'll be fine!' I try to find a happy medium.

"At least 70 percent of being a successful technician in this industry is being able to deal with all of the different people that you work with," he continues. "There are so many different egos and personalities out there. Sometimes I wind up stepping in and playing mediator here and there. A lot of times I'll see somebody struggling to put something in place or make it work, and I'll see a way to simplify it a bit by changing what they're trying to do. I'll still achieve the same thing, but I'll do it a different way. Because of the egos in this industry, you have to figure out ways to help people do what they need to without stepping on their toes. Because of people's varying personalities, there's a careful little line there. You don't want to steal anybody's thunder."

— Christopher Probst



The crew sets up two cameras in the alien-hive set. Notes Rawlins, "There were a lot of on-set special effect and props elements within the filming that required lighting — lots of alien egg pods, bodies and cylinders with fluid in them. We were involved with whatever the effects and props departments were building so that we would have a way to light some of these structures from above, below or behind."

longer lenses — not to be more American [in my shooting style], but because sometimes it's useful to have more [cutting] material. On *Delicatessen* and *The City of Lost Children*, I used the 18mm and 25mm lenses all the time. On *Alien*, I often used a 14.5mm. For me, any lens after a 25mm is a long lens. When I put on a 35mm, it's a long lens, but that's also because I like to be very close to the actors. I love when an actor approaches very close to the lens. However, the

> **"I've found that making films is often close to making love in terms of pleasure and intimacy."**
> **— Darius Khondji, AFC**

main problem in using short lenses is that in each shot you have a lot of set to light. So you have to be patient with the lighting. Darius has a very picky eye like I do; sometimes it's tough to work with someone who has a picky eye for the light, because you have to wait — and like all directors, I hate to wait. When you work with Darius, you know you may have to wait some, but you also know that the results will be very nice."

In order to illuminate the aliens themselves, Khondji devised a specific lighting treatment to add even more menace to the already abhorrent creatures. "I lit the aliens almost exclusively with reflections of fluorescents," notes the cinematographer. "I had them constantly wetted with [methyl-cellulose] goo, and then we basically built a cage of Kino Flos around them to create reflections in the moisture. Also, I'd often add a little green to the aliens' lighting. You couldn't really tell the color is there, but it had an effect. I love the color green. I find it very sensuous in a way, and I think the aliens have a kind of a sensuous design as well. They're the essence of evil, but there can sometimes be a sensuousness in evil.

"I've found that making films is often close to making love

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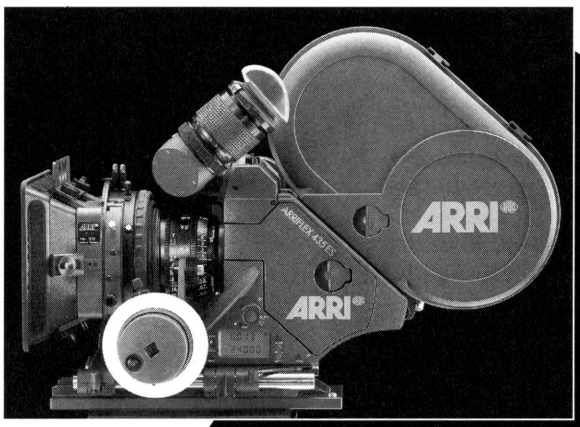

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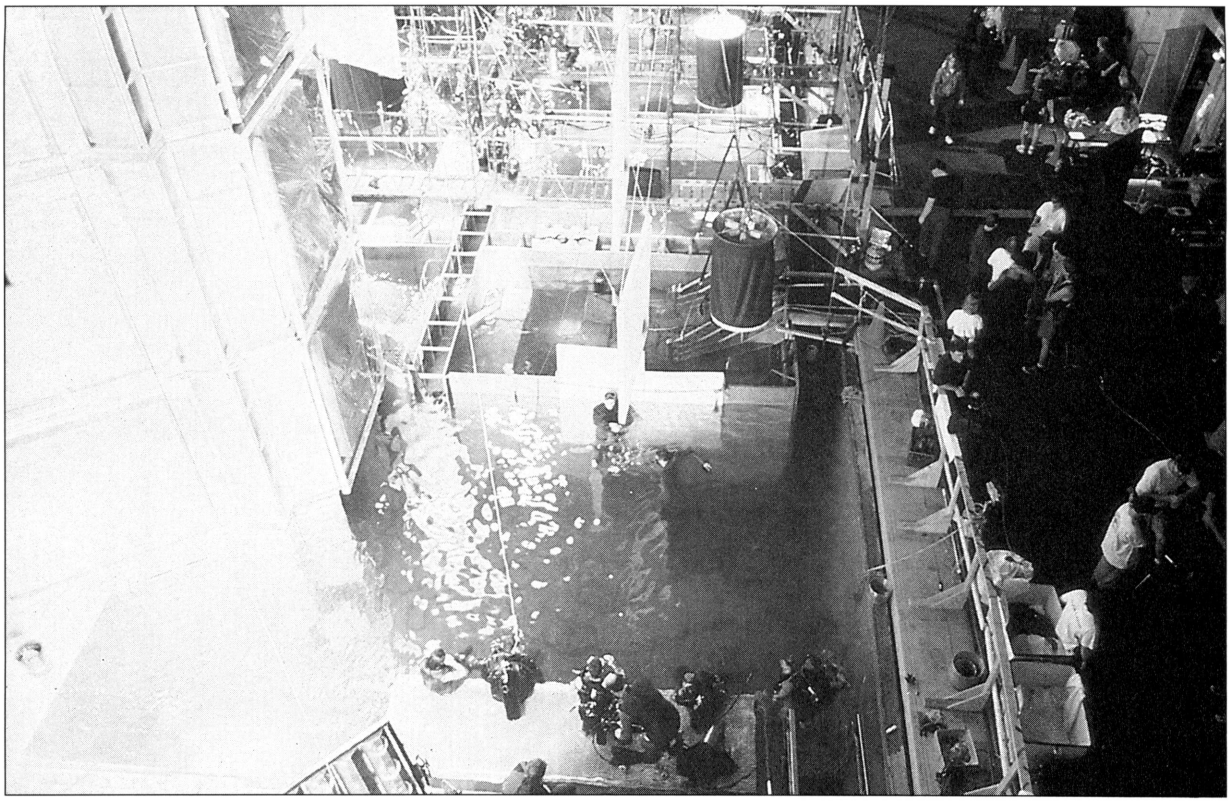

Right: ***For the film's extensive underwater chase sequence, the production utilized the 117' x 50' sunken pool on Fox's stage 16. The 13' deep tank held 548,000 gallons of water and housed three of the film's setpieces: a submerged kitchen, a narrow cooling-tower corridor, and a vertigo-inspiring elevator shaft set that stretched over 30' up out of the pool.***

Below: ***The crew films at the base of the elevator shaft utilizing HydroFlex underwater camera housings and new underwater fluorescent lighting units created by underwater cameraman Peter Romano with the cooperation of Kino Flo.***

in terms of pleasure and intimacy. I've never really discussed this point in an interview, but it's very important. When I look at paintings in a gallery or museum — especially Italian, Florentine, Renaissance and primitive paintings — there's something very sensuous and sexy emanating from them. I've always found the experience very exciting and arousing. I think the same sort of thing happens when you play with light — studying people's faces and bodies — and illuminate a set; there's something extremely exciting about it. Cinematography often forces you to look at something more closely and really examine its features. In doing so, you become much more connected to the inner essence and beauty of that person or object. It's a very intimate exchange between the light and the subject."

"The aliens went almost totally black once they had the slime on them," expands Strong, "So, just as you can't 'light' a black car — you reflect light *onto* a black car — we reflected Kino Flos onto the aliens, which were mostly lit with several single daylight tubes. Additionally, we'd sometimes use a harder light to backlight the steam or drool coming out of their mouths. There, we'd use a small tungsten unit for the backlight, because a Kino Flo isn't really hard enough to do the job."

For scenes in which Ripley is in close proximity to the aliens, Khondji was presented with a problem that yielded a fortuitous solution. "The lighting for the alien was completely different than the lighting for Sigourney Weaver," submits Khondji. "The difficult part was finding a way to light her differently than the alien, even though they were interacting together within a shot." Considering Ripley's duplicitous character and mysterious agenda, however, the photographic predicament actually added subtext to the character's lighting in those instances. "I decided that I would sometimes light Sigourney closer to the way I did the alien. I would have her skin wetted to make it look shiny and then use fluorescents to create reflections around her arms and face, underexposing slightly. This gave a strange texture on the skin that is reminiscent of the way the alien looks."

A particular challenge for the entire crew was filming an extensive underwater chase sequence that takes place in the *Auriga*'s flooded kitchen. Khondji — who got his diver's certification before shooting *The City of Lost Children* in order to operate during the film's underwater sequences — worked with veteran underwater director of photography Peter Romano to tackle the physically

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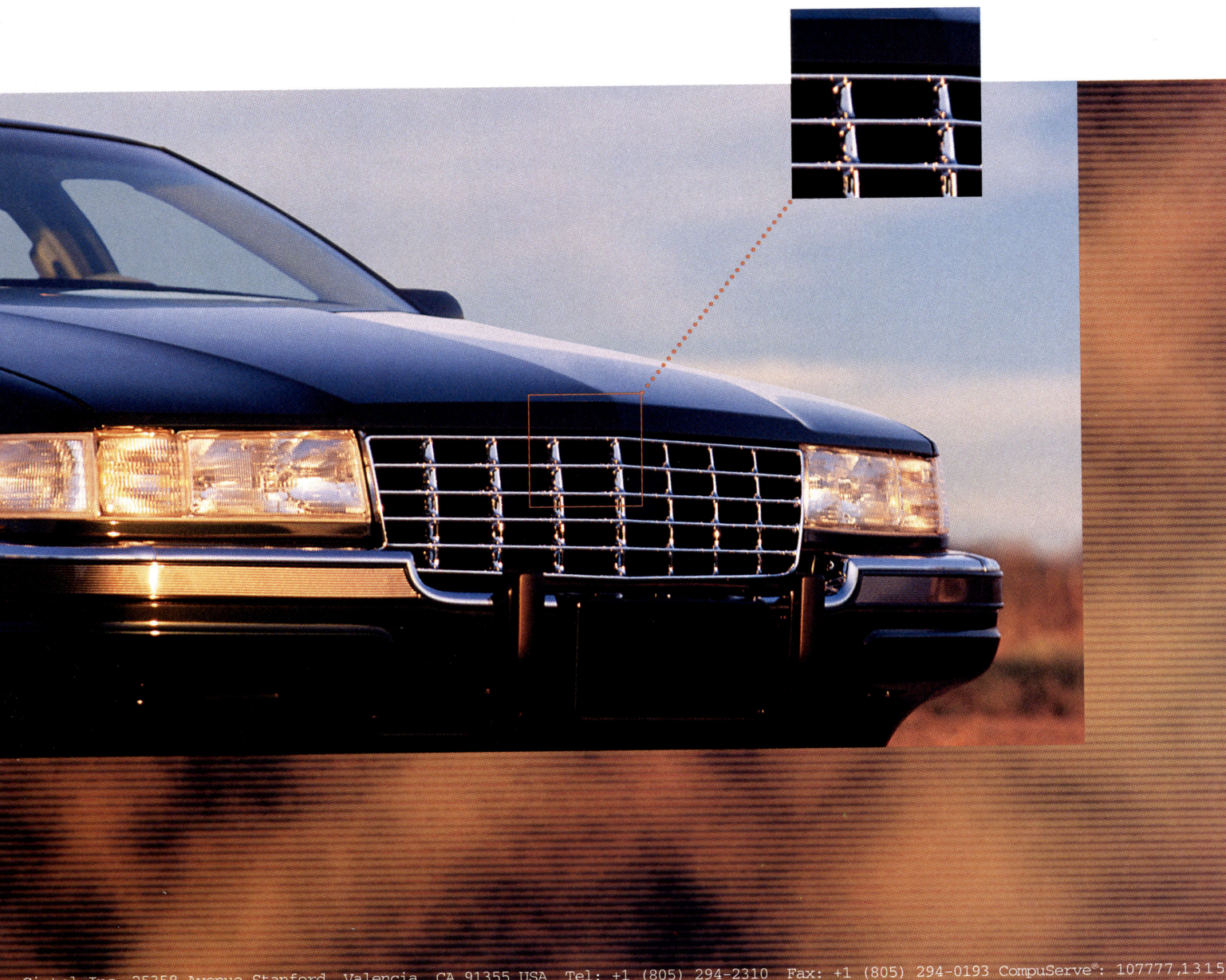

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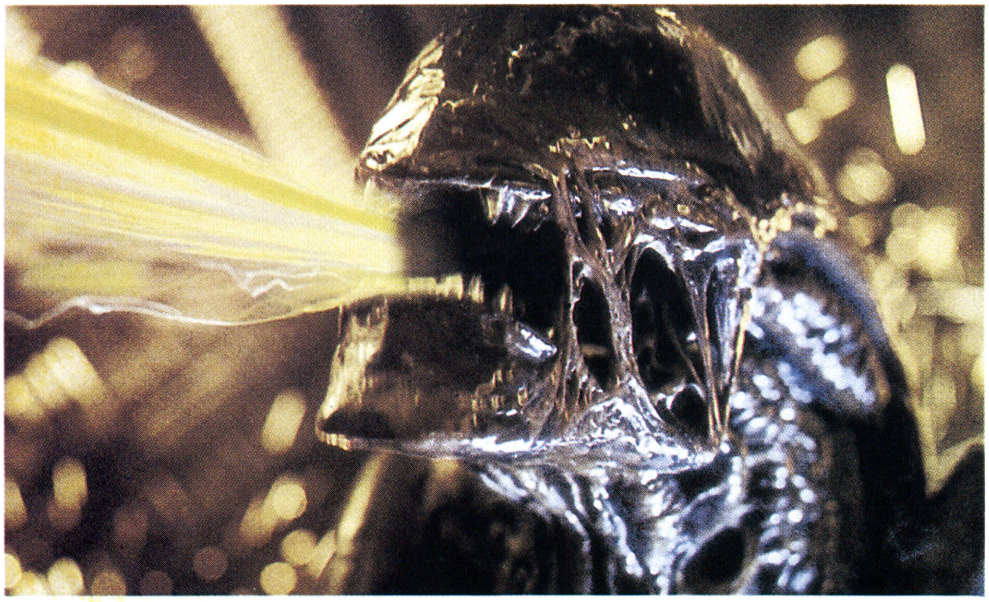


Jeunet added menace to the aliens by giving them the ability to spit acidic venom at their prey. Commenting on the film's horror aspects, he says, "I have no idea [how to go about scaring audiences], because I'm never afraid in a theater. I can't imagine how you can be afraid in the theater, but during test screenings I saw men — and especially women — jump out of their seats. So I think I did okay."

draining three week submerged shoot. "We had several discussions about the lighting and how much you would see underwater," explains Khondji. "We wanted to have the freedom to shoot the chase almost in a choreographed manner with two underwater cameras. So I decided to utilize overhead lighting, making shafts of light using virtually no fill at all and underexposing a lot. The only lights I would actually bring into the water were these new underwater Kino Flos — built by Peter Romano's company HydroFlex and Kino Flo — which could be used to add some half-light fill on an actor's face, making one side go completely black. I would also use the Kinos near the camera to bring light into the actors' eyes as they swam through frame. I tried to keep the underwater lighting more *clair-obscur* — which means clear and dark in painting terms — by creating light and dark areas underwater, which is very difficult because water spreads light very quickly."

Explains Strong, "The kitchen and all of the underwater sets were lit from above the water with 1200-watt ACL Pars on scaffolding shooting down into the water. They were used to edge the actors as they swam through different areas, as well as to highlight certain parts of the kitchen — metal support pillars, chrome appliances, utensils, etcetera. The Pars weren't totally directional because the water did disperse the light, so they naturally lit other areas. However, the 1200-watt ACLs — basically aircraft landing lights made with clear glass, which have very hard mirrors behind them — are very spotted and directional, so they had a better chance of reaching straight to the bottom of the set [than a normal Par light]. We ran AC for the majority of the underwater shooting, but we did have everything ground-fault interrupted [GFI] so that if anything ever fell in the water it would trip immediately."

The intense underwater chase leads Ripley and her cohorts into a flooded elevator shaft with their xenomorph pursuers right behind them. Approximately 30' tall, the six-sided elevator shaft was lit by a series of Maxi-Brutes and Dino lights suspended from the permanents by chain motors, which illuminated modular 4' x 4' frames of 129 diffusion and quarter CTB that could be affixed to the side panels. The water at the bottom of the shaft was illuminated with individual 10K bulbs to provide a ghoulish blue-green glow; these were run on DC power due to safety concerns. "We designed that set so that whenever we opened up one side, all of the unnecessary lighting and frames could be sucked up out of the way to the permanents on tag-lines through a pulley system," details Rawlins. "We usually used about three different layers of gel. One layer of diffusion was built in the frame that mounted directly on the set. Then, hanging outside the set, another layer of diffusion was used to soften the light even more. There was a layer of color hanging in front of the lights as well.

"Additionally, we worked with the set designers to make sure that we could pull two of the sets' walls completely out to make a path for the 31' Technocrane which we had mounted on a Titan crane. I believe that was the first time anyone had put the larger Technocrane on a Titan. We went through a lot of research with Chapman and Technocrane to make sure that we did not exceed the specified weight and safety limits set by Chapman."

Both Khondji and Jeunet are pleased with their experience on *Alien Resurrection*, and they believe that they have delivered a fresh perspective on the series. Asked if his shooting style has a consistent methodology, Khondji offers, "I don't want to have one set method that's always fixed throughout my films. When I walk onto a set or a location, I already have the mood of the scene in mind, so I try to adapt that to the set or location. However, when I visit a location, there are actually two things that may effect how I shoot there. First, I may be inspired by the location itself. And second, sometimes the ambiance of the location's natural lighting may bring out a certain quality. When you visit a set, it's much more of a constructed, planned world, so you rarely have as many intuitive and instinctive emotions. By that point, I've already done a lot of planning with the designer, so I usually know beforehand how it's going to look and be lit.

"I would like to think that my methods change according to the director that I'm working with and the story that I'm telling visually," he concludes. "I always try to stick with the director and really become his friend. I try to understand what he has in mind and what's important in the story. And then I try to work with the actors almost as if I'm another actor on set, performing through my work." ◆

Shotmaker to Market "Blue" Dollies for the First Time in U.S.

Shotmaker Dollies, Inc. has won the exclusive right to market, rent and sell its Shotmaker "Blue" line of camera dollies in the United States, as a result of a court decision by the United States District Court.

Shotmaker Dollies, Inc. will now be selling, renting and leasing their "Blue" camera dollies, the Falcon, Hawk, and Eagle.

Chapman/Leonard Studio Equipment, Inc. filed a lawsuit with U.S. District Court claiming that the Shotmaker "Blue" dollies were in contempt of a 1991 permanent injunction that protected the trade dress of Chapman's Pee Wee dollie. However, after identifying and analyzing over 122 visual elements between the two manufacturers' dollies, the court ruled in favor of Shotmaker and stated that "the new Cinemeccanica dollies are adequately divergent... [as] the [Shotmaker] Falcon has 44 unique elements, the [Shotmaker] Hawk has 53, and the [Shotmaker] Eagle has 51." These dollies are distributed exclusively by Shotmaker Dollies, Inc.

The court explained in its ruling saying "it is reasonable to believe that, given the striking visual difference between the dollies, not at least of which is their bright blue color, a consumer would not assume [Shotmaker dollies] to be Chapman dollies."

In the final court documents the ruling concludes stating, "the court finds no substantial similarity between the dollies...[and Shotmaker is] free to continue to market the Falcon, Hawk, and Eagle in the United States under the terms of the injunction."

Roy Atlas, President and Chief Operating Officer of Shotmaker Dollies, Incorporated was elated by the victory. He responded by saying, "I have always believed in the spirit of free enterprise and fair competition; and my faith in the United States judicial system has only been reinforced."

When asked to comment on the lawsuit, Mr. Atlas replied that "even though orders had been received for our "Blue" dollies, when the legal challenge was made, I immediately stopped all rental, lease, and sale efforts of the Falcon, Hawk, and Eagle, but now it's full speed ahead! This ruling eliminates our customers legal apprehensions about using the Shotmaker Blue Dollies. The Falcon, Hawk, and Eagle are available for rent, lease, or sale immediately.

Unlike our competition, the Shotmaker "Blue" dollies are available for sale, and not just rental or lease as with competitors, is believed to be of major interest to the entertainment industry.

Shotmaker Dollies Inc., is wholly owned subsidiary of Camera Platforms International, Inc., a public company (CPFR), manufactures, markets, and rents production equipment for the motion picture and television industry. CPI's operating units include The Shotmaker Company (the world's largest camera car company and supplier of camera cranes and remote camera heads) and Shotmaker Dollies, Inc. (a supplier of sophisticated camera dollies and accessories).

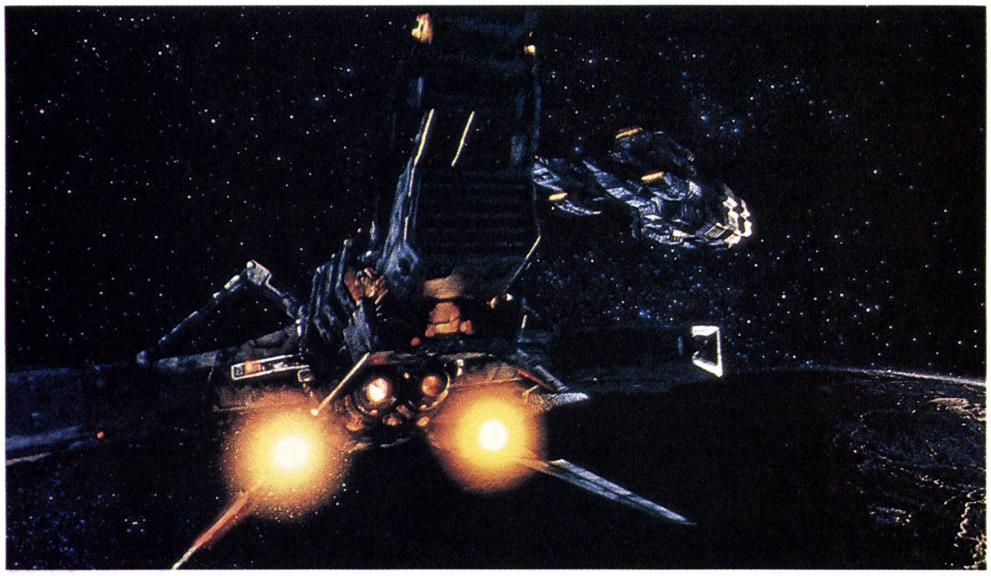
The company was started in 1985 by producer-director Hal Needham; its operating units have received five awards for technical achievement from the Motion Picture and Television Academies of Arts and Sciences.

Contact: Roy Atlas, President,
Mike Tucker, Camera Cars Manager
Rick Dooley, Sales Manager
Carlos Chavez, Rental Manager
Ron Riddle, General Manager

"Alien" Effects Techniques Add Realism

An unusual combination of lighting and matte methods is developed for *Alien Resurrection*.

by Ron Magid



Photos courtesy of 20th Century Fox.

The* Betty *soars through deep space toward the brooding* Auriga *space station. The mosquito-like scout craft was fashioned as 5' model and photographed by Fichter using light bounced from Black Wrap-covered boards.

Though visual effects cinematographer Rick Fichter is an industry veteran of nearly 20 years, his name is not instantly recognizable, even to diehard effects aficionados. That's because he often uses pseudonyms — the names of friends and family — to avoid "the egoism of Hollywood." Fichter first assisted on *The Empire Strikes Back*'s breakthrough miniature photography, shot effects for *The Right Stuff* and *RoboCop*, and became a director of visual effects photography on *Top Gun*. And despite having won an Emmy for his work on *Ewoks 2* and a British Academy Award for *Honey, I Shrunk The Kids*, the effects cameraman continues to shoot semi-anonymously. On *Alien Resurrection*, Fichter credits himself under the names of his parents — "Big Harry" and "Little Mary Fichter." The double billing is ironically apropos: the enormous workload entailed by this futuristic film had the cinematographer wishing that he could clone himself.

Having photographed models and puppets for *Alien*^{3}, Fichter nearly turned down *Alien Resurrection* due to misgivings about the possibility of creative repetition. "When they called me about the job, I thought, 'Do I want to do another one?' But I really wanted to work with the people who were involved, such as producer Bill Badalato [*Top Gun*], and visual effects producer Susan Zwerman. And when [director of photography] Darius Khondji told me what they were looking for, I got rather excited. I've worked with a lot of top-notch cameramen, but Darius is probably the best."

Khondji encouraged Fichter to take a lighting approach that the effects cinematographer had long wanted to try: "Darius described deep space as this absence of light, and yet, there's also this absolute 'God-like' light — a directionless and non-existent light. Years ago, I was working on another picture and the filmmakers had described that, but when we started to go in that direction, they got very frightened and backed off. But Darius kept talking about this God-light look. We both knew what we were talking about, although it was difficult to describe."

Despite a theoretical understanding, Fichter didn't know how to achieve this ethereal illumination, especially considering the unique characteristics of *Alien Resurrection*'s miniature spacecraft. Both the *Betty* (a small, light-colored, mosquito-like ship)and the *Auriga* (a dark, brooding, cigar-shaped space station) had highly detailed surfaces which kicked light right back to its source. Fichter concedes that "from the standpoint of physics, those complicated, shiny surfaces made it almost impossible to create the very diffused lighting we wanted. [To solve the problem], we built these very large fluorescent banks which we felt would be a very soft, omnidirectional lighting source. But while they came in very handy with much of the miniature work, these banks weren't the answer.

"I then tried a trick I learned years ago in my commercial work. When lighting jewelry, we would build a black fabric tent out from the lens and then bathe the jewelry with this omnidirectional lighting, which made it look very full-bodied. But when we experimented with that approach on our *Alien* models, the directionality made the surfaces kick and gave them this very high-key look, which was exactly the opposite of what we were looking for.

"I did a test early on to show Darius and director Jean-Pierre Jeunet that the model surfaces were not conducive to our lighting approach. Meanwhile, everyone was saying, 'We need to get shots in the can.' But Darius was very supportive and kept pushing them to give me some time to figure out how we were going to light this."

Fichter's solution to the lighting problem occurred purely by accident. He recalls, "A grip carrying a piece of black foamcore

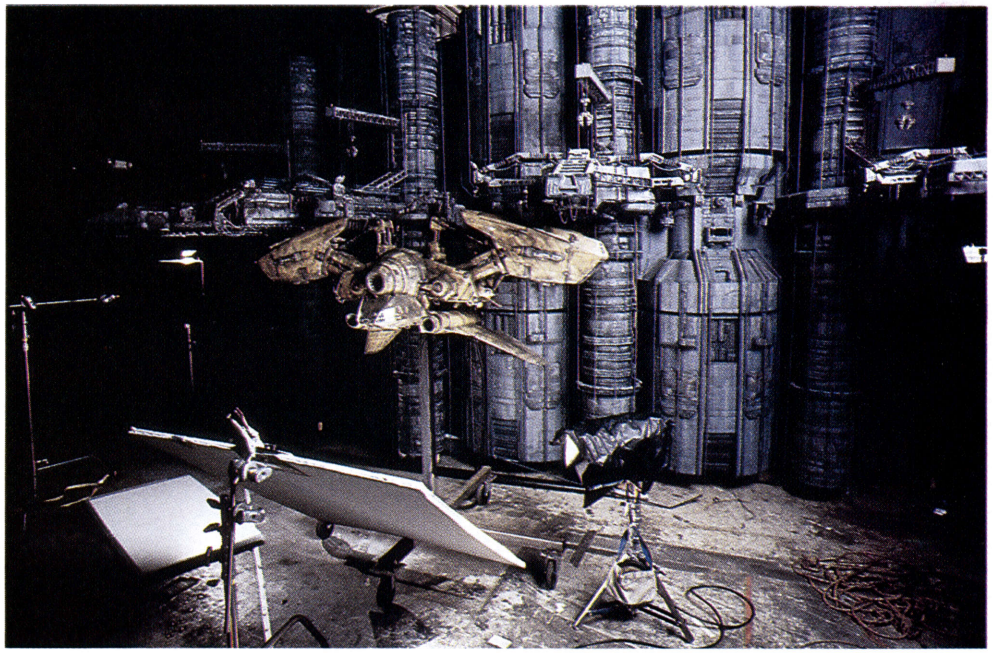
walked in front of this very powerful light and I saw the light we were talking about. Negative sources are nothing new and have been used to take light away and cancel out certain types of light, but this was different.There is light in deep space, but it's negative light and everything out there is black. Here we had a very powerful light bouncing off a black surface, which had the quality of being there without 'being' there. We tried throwing black silks in front of our lights, but found that the effect only worked when white light was bounced into a reflective black surface."

But Fichter's negative-lighting approach also produced a unique and paradoxical challenge: how to bounce sufficient illumination off a black surface that was also absorbing a large amount of light. The simple answer was to use very large fixtures. The cameraman explains, "In miniature photography, we normally use small lights to work with the scale of the miniatures. But here we were using 20Ks and Maxi-Brutes in order to get enough bounce, and we had a lot of problems with the heat created by all of these huge lamps inside the black tent that covered the shooting stage."

A secondary dilemma was finding a bounce material that could create the proper effect yet withstand the intense heat. After considering several bounce materials, one of which involved anodized pieces of aluminum, Fichter finally hit upon a novel and cost-effective solution: "We eventually made 20' x 12' x 6' surfaces covered with Black Wrap, then pounded our lights into that."

The *Auriga's* color scheme compounded Fichter's lighting problems, as the station's ominous, unnerving characterization led to it being a rather dark-hued model. He recalls, "I kept asking, 'Can't we paint the model lighter, shoot it, and then print it down?' But Darius didn't feel it would have the same quality, so we struggled to do it the difficult way. In the end, though, that was the correct approach."

While the muted shades of the three previous *Alien* films made them largely monochromatic movies, *Alien Resurrection* is relatively colorful, much like the dreamy images in Jeunet's fantasy *The City of Lost Children*, which was co-directed by frequent collaborator Marc Caro. "Funnily enough, we originally talked about taking a monochromatic approach on this film," says Fichter, "yet somewhere along the line, [the palette] became *their version* of a monochromatic look. But Darius used the ENR process to take some of the garishness out of the colors, and I was actually a little bit surprised — the look is gorgeous and richly detailed."



The* Betty *model docked to a highly-detailed portion of the* Auriga *on the shooting stage. The small ship's colorful scheme is an anomalie in the* Alien *universe.

The same can be said of Fichter's miniature photography. The *Auriga* emerges as a angst-ridden art nouveau monolith that absorbs all illumination, in stark contrast to the *Betty*, a bright, insect-like craft which radiates light: "One thing I wanted to experiment with, and for which I got Darius' blessing, was to have light emanating from the *Betty* rather than striking it. However, we did have to compromise a bit, because the director wanted the *Betty*'s cockpit [canopy to be made of dark smoked glass], which threw off our exposures. We couldn't get enough light emanating from the interior cockpit, but it looked pretty good once we started playing with the practical lights on the model."

Fichter also used practical lights to illuminate the miniature interior of the *Auriga*'s docking bay for a sequence in which the luminous *Betty* rises up a vertical shaft inside the space station's pitch-black belly. "Because part of the lighting theme required the use practical lights, we had to separate many layers of lights [as separate camera passes] in order to control them," Fichter explains. "If we exposed properly for the blue tracking lights, that exposure would be totally inappropriate for the engine glow lights, so we were separating lights left and right. One thing I'm grateful for is that under normal circumstances, the producers would have sacrificed the look by saying 'Just put them on the same pass.' But the people on this film tried every which way to get the look right."

Fichter may have licked the God-light problem, but working in the tented, inferno-like model stage became quite a hellish undertaking. He explains, "We were exposing at T22 most of the time partly because we weren't using the best model scale for the job and we needed more depth. We also ended up using snorkel lenses, which are rather slow, to get down into the models. But with our lighting approach, the heat got really terrible. To us, the shots seemed to go on forever." ➢

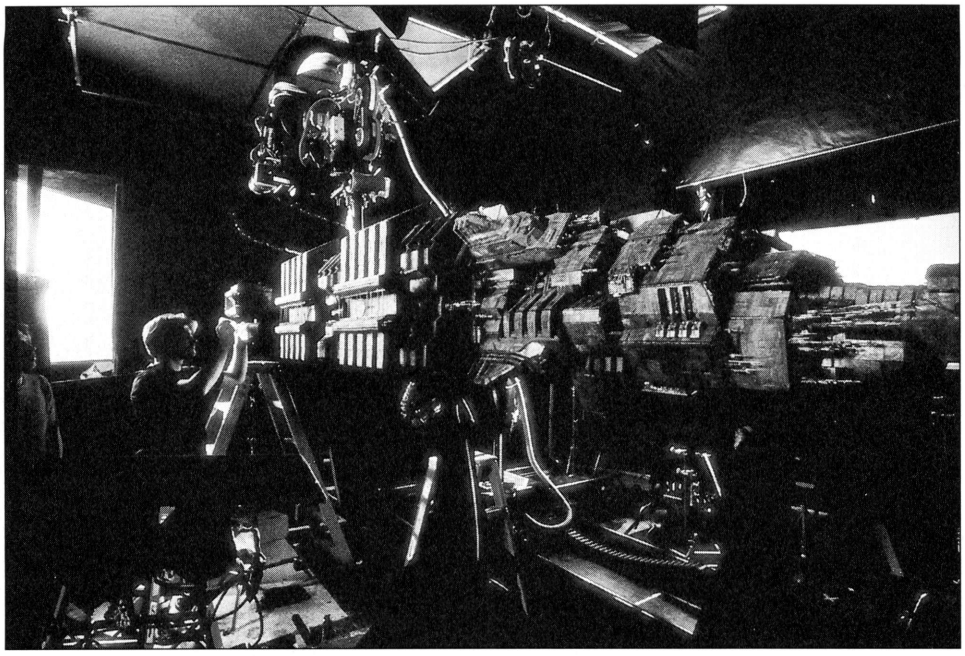


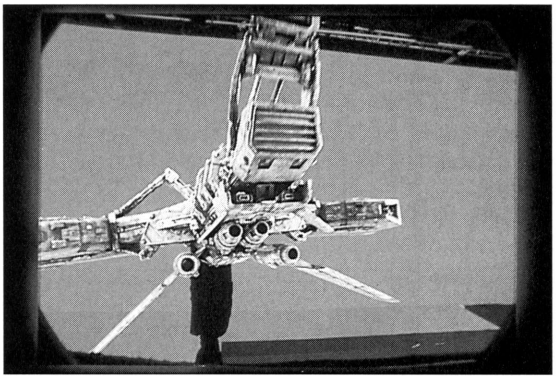
Photo by Sam Urdank.

Above: *Shooting the* Auriga. *While Fichter initially though large fluorscent-tube banks could be used to create the omni-directional lighting he sought, further experimentaion led him in another direction. Right: The* Betty *undergoes a greenscreen setup. Fichter ran into problems with his greenscreen work while shooting on Kodak's T-grain stocks, but later solved the dilemma.*

The buildup of heat caused the 12' resin *Auriga* model to begin melting. Air conditioning was virtually useless on most passes because the model required smoke for depth, and temperature changes from stage floor to ceiling produced visible heat ripples. To counter this dilemma, Fichter began using dramatically longer exposures to reduce the level of light, and therefore the heat's intensity.

But Fichter's shooting methods led to a bizarre chain-reaction in terms of reciprocity (a film stock's relative sensitivity), as the T-grain emulsion began failing its ASA reading. "I was under the impression that Kodak's T-grain technology didn't have much reciprocity failure, but if we needed a 10-second or longer exposure at T22, we ran into big-time trouble. We started having these color shifts, and the director said, 'It looks bluer this time.' I hadn't changed my lights, so I went to the lab, because I suspected we had a problem with the ENR process. When I finally looked at a reciprocity test, I realized that the film was becoming *less* sensitive. We were losing a stop to a stop-and-a-half due to reciprocity failure."

One solution would have been to switch to a faster film stock. Such a change, however, could have affected an already-evolving problem involving Kodak's T-grain stocks and greenscreen matting difficulties. "The faster the film stock, the more adjacency problems we ran into," Fichter states. "It was a no-win situation. All of the Kodak T-grain stocks, even the new ones, contributed to edge artifact problems when we were shooting against greenscreen. But I stuck with Kodak because they make such consistent and dependable stock."



Consistency and dependability were two qualities Fichter counted on while dealing with *Alien Resurrection*'s complex compositing issues. He explains, "Early on, I had a long conversation with Duboi [the Paris-based effects company founded by Pitof, *Alien Resurrection*'s visual effects supervisor], who were doing the matting. We did a series of tests to isolate where they wanted greenscreen or bluescreen used. But when I presented the tests to Duboi, they said, 'We have a problem.' It turned out that all of the effects houses in Europe were having problems with the use of greenscreen."

The greenscreen system had been failing to generate the fine-edged detail necessary for believable mattes of the *Betty* and *Auriga*. Usage of bluescreen was out of the question because its characteristics ran counter to Khondji's desired look. "Darius would go crazy with the blue because it's so contrasty and grainy," Fichter explains. "At that point, I called Jonathan Erland of Composite Components, who was extremely helpful. We started talking about using a UV matting technique, and I thought, 'Do we really want to get into this?' These processes require coating the models with special UV-sensitive paints and shooting them extremely carefully, which would've been a monster problem with that huge *Auriga* model. But then John and I came up with a way to handle a UV redscreen; we only accessed the red layer [of the emulsion], which gave us the sharpest mattes and wasn't grainy. Although the red layer is slow, it has the finest grain, and it got us away from the very contrasty and grainy blue layer. I thought everything was perfect."

Matting methods utilizing UV lighting and the red emulsion bandwith were pioneered by Erland and Roger Dorney for the film *Firefox* (see *AC* Sept. 1982) and later adapted by Digital Domain for use on *Apollo 13* (*AC* June '95) and *The Fifth Element* (*AC* May '97). With this technique, the frontlit beauty, key and fill passes for models are filmed against black; a backlight pass is then shot, with a screen painted with UV-sensitive paint positioned behind the subject. When hit with a Kino Flo, the screen fluoresces a very narrow bandwidth frequency of red, making the model appear as

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a black silhouette against red. The backlit image only registers on the red layer of the film, creating a perfect matte.

However, the solution itself became problematic on *Alien Resurrection*. Says Fichter, "I got a call to come over to see some compositing tests. I saw some problems, but I couldn't understand what was causing them. I asked if they were using a different matting process, but because neither my French or their English was very good, we had difficulty communicating. It dawned on me that they were using a color-difference system, which employs different colors to create mattes. The technique we were using — a UV-irradiated redscreen with a black core, which became the matte for the model — was a problem for Duboi, because the black core had residual UV red contamination. In the U.S., where we use the more exact contrast-matting system, we eliminate that contamination by adjusting the contrast, but this was pure disaster with Duboi's matting system.

"Since we couldn't use a black core, we decided to put some color in that inner matte. The ideal color was the reverse of the UV redscreen, so we tried all kinds of combinations where we lit the foreground model with Composite Components' blue globes. We had to run a 2E filter for the ultraviolet light or we'd get crosstalk, and we had to separate all our passes, which became incredibly difficult."

Fichter and Erland soon devised a photographic method to function with the color-difference system in a single matte pass. The process employed antiquated filters to create the exact reverse of the UV redscreen color background for the core matte. "We'd go to the Kodak filter table and evaluate what color of light would be passed and absorbed by certain filters," Fichter remembers. "John and I figured that by lighting everything with blue light and using a certain magenta filter, we could have red on the screen and blue on the model, and nothing else, so we could get everything in one matte pass. I thought that test worked magnificently, but when we brought it to Duboi, we again had problems: the matte edges were not sharp.

"We ended up using a two-pass system. I would shoot the screen and the foreground blacked out, and then go back and reverse all of the lighting, backwind, and double-expose the blue core. But if the camera was not totally steady, it wouldn't work. We needed all of this intense light to create the God-light look, then we had to change everything for the blue-light pass, and then we had to change everything again for the UV pass. We had to move things constantly without bumping the model or the lights. We never knew what was going to happen. Once we started shooting, we just couldn't stop. The exposures were very long and we had a very high number of passes, so our shoots would sometimes last 15 or 20 hours! We would try to shoot certain passes in order, so that before we stopped shooting, we could dump some of the film in the lab and evaluate whether or not we were okay. Frankly, there were times when we found that somebody had slipped or nudged something; we then had to make an evaluation about which passes had to be reshot.

"Duboi had to rotoscope those shots that got bumped slightly," Fichter states. "Ultimately, though, the process really worked, and John was ecstatic because we had tested out all of these really theoretical things nobody had ever really done before."

Fichter believes that solving such color-difference matting problems may eventually facilitate more artistic and effective composites for future films. "If the software can be modified, the color-difference system could conceivably be better than the contrast matting technique," he offers. "Employing the theory John and I were experimenting with, effects cinematographers could use magenta filters to pass red and blue, hold back green, and ultimately shoot mattes in a single pass, including spill mattes. Given the efficiency of corporate filmmaking, whether we ever realize this process is another issue, but the color-difference system could conceivably be a very good way to go." ◆

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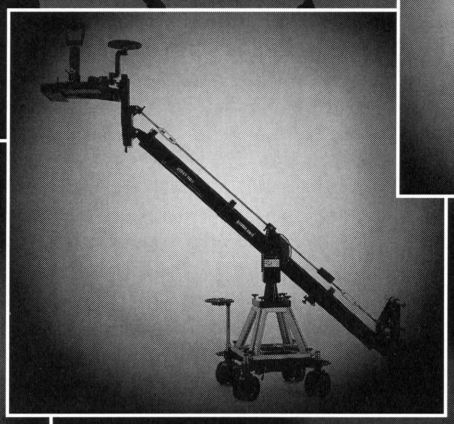

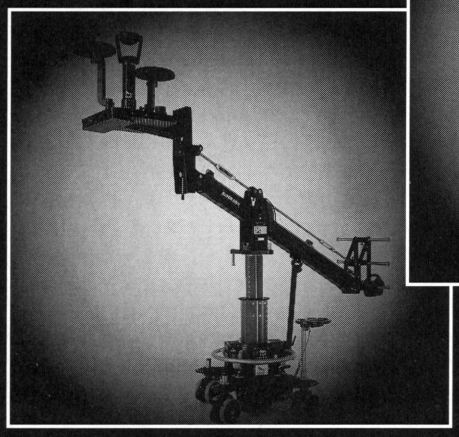

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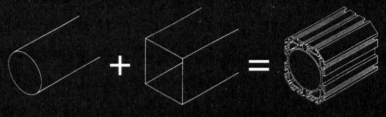

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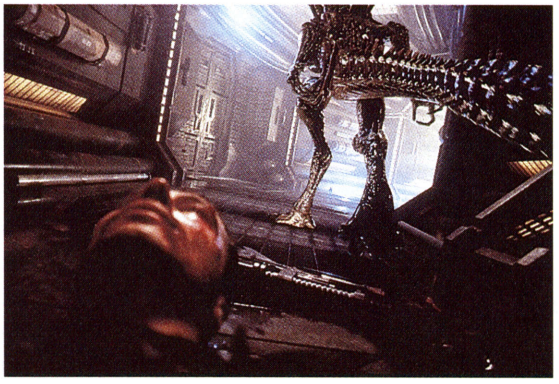
Reanimating a Familiar Foe

Blue Sky Studios' fully-CG xenomorph adds new menace to infamous alien.

by Ron Magid



Charged with making the alien more mobile, Blue Sky Studios rendered the creature as a fully-CGI entity capable of swimming and impressive locomotion.

Designed by Swiss surrealist artist H.R. Giger, the alien — with its vertebrated tail, stovepiped back and slimy penile head — is one of modern cinema's most recognized monstrosities. Despite its humble man-in-a-suit origins, the alien is one of the most detailed extraterrestrials ever designed — a fun factoid, unless of course you're trying to model the creature via computer graphics. On *Alien Resurrection*, that unenviable task fell to Blue Sky Studios, a New York-based effects house best known for a series of award-winning commercials and for creating hordes of cavorting cockroaches for the MTV film *Joe's Apartment*.

"Giger's inspirational art is incredibly detailed and rich," says Mitch Kopelman, Blue Sky's digital effects supervisor for *Alien Resurrection*. "Just modeling the alien took several months. Amalgamated Dynamics Inc. [ADI], which made the suit for both *Alien3* and *Alien Resurrection*, sent us a 1:1 scale alien sculpture, which we cyberscanned. We brought that 3-D reference into Softimage and did a quickie cleanup so we could work with it; that gave us the rough dimensions and proportions of the alien pieces. Then Alex Levenson and Mike DeFeo blew away the cyberscan and modeled all of the details in Alias. We brought those individual pieces into Softimage, where we actually put the alien together — attaching the arms to the torso and so on — using what we call Animate Connections. We've written a lot of plug-ins to help make the socking of the joints and connections seamless, so when the animator moves the arms or legs, it's got a nice, realistic feel to it."

By using NURB (non-uniform rational B-spline component) data instead of polygons to create their CG model, Blue Sky was able to create a much more dexterous alien. "If we had used traditional polygonal-type models, the alien would have required millions and millions of vertices," Kopelman explains. "That would have made the model incredibly heavy and difficult to animate and render. Fortunately, our homebred renderer, CGI Studio, enabled us to work with the alien model in its NURB state, which reduced the amount of data going into a scene while allowing us to increase the amount of detail in the model. When we finally rendered our CG images, CGI Studio left things in their natural NURB state, so [the computer] didn't have to keep track of all the tons of data."

This was a true boon to the design process, since the alien's facial geometry became ever more complicated as the design evolved throughout preproduction. "Although its head is mostly a big piece of geometry on top, the rigging and modeling of the lips, which had to pull back in stages like separate shades from the teeth, was tricky," admits Christopher Scollard, Blue Sky's visual effects producer. "The most challenging thing about modeling the head was creating the sinewy geometry on the sides that connects the upper and lower jaws."

That element of musculature was crucial since Blue Sky's CG alien wasn't going to be visible merely in long shots. "Our model had to take as large a close-up as the man-in-the-suit version, so we built it with that intention," Kopelman says. "Originally, we planned to build lower-res versions for shots further away, but when we realized we were getting reasonable render times with the high-res model, we stuck with that. Then we painted the texture maps using a combination of Photoshop, Amazon and some of our own projection tools."

Matching the textures of the CG alien to those of the original suit was a constant challenge, because the suit suffered wear-and-tear throughout principal photography. "Re-creating the material properties of the alien's skin was also difficult," Kopelman adds. "The suit was coated with goo, and that greasy quality was difficult to simulate in computer graphics. A nice, clean plastic highlight is what we can do most easily, and this was anything but. There's a lot of organic complexity to the alien, so there are a lot of texture maps on that baby — upwards of 150-200 megabytes — to help it along."

The texture maps, coupled with some complex animation rigging developed by Blue Sky animators Jim Bresnahan and

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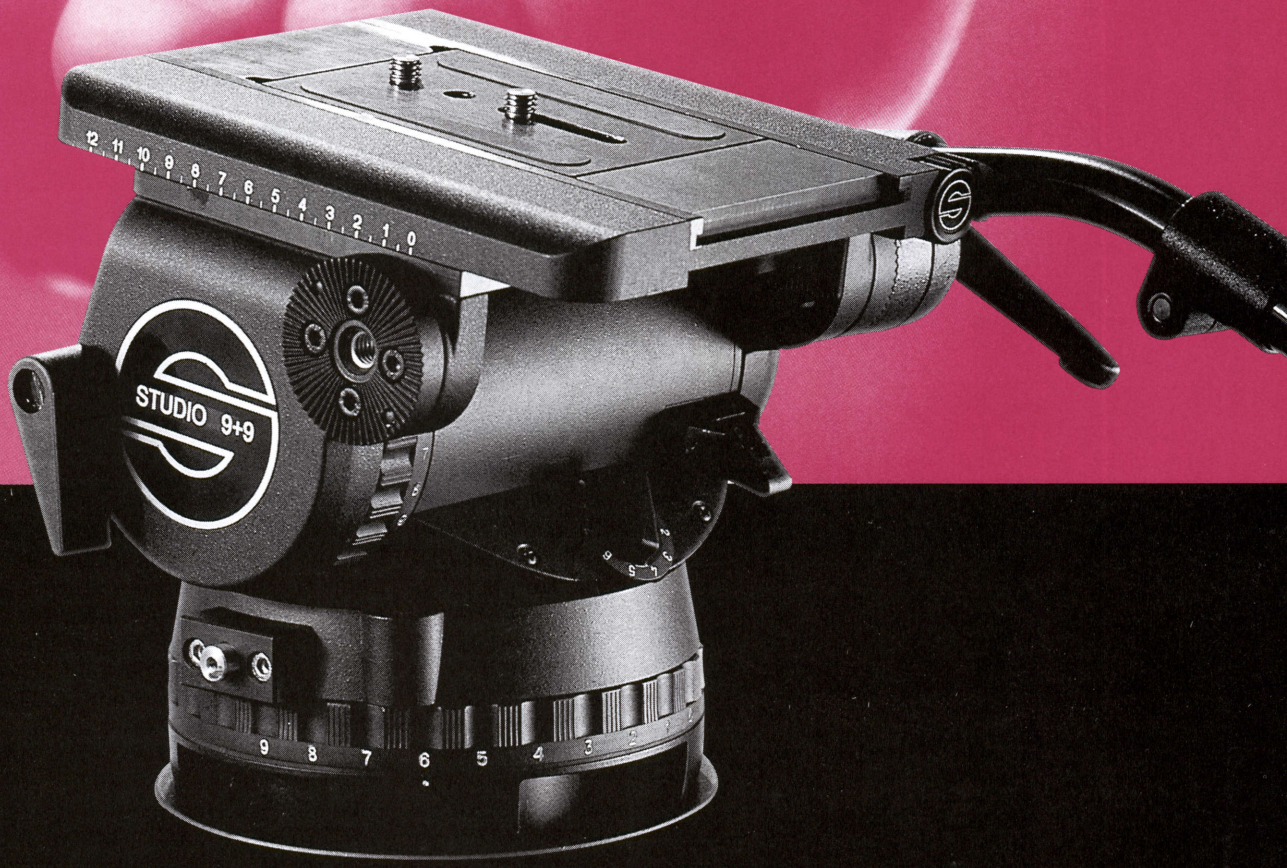

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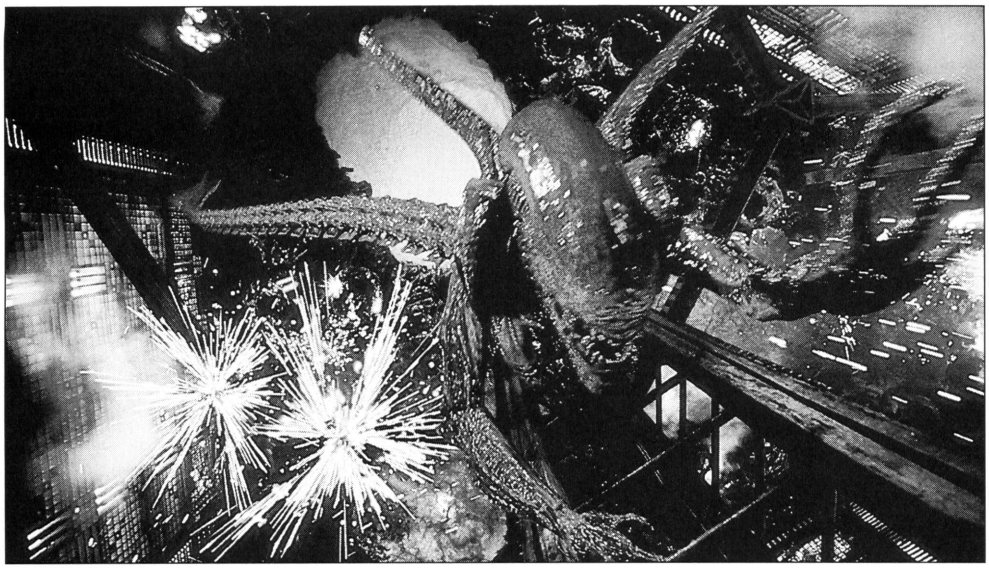
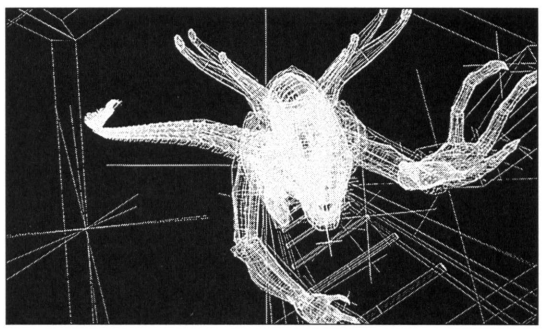


Above: ***A fearsome digital Alien climbs after human prey. The creature was first constructed as a scale maquette by Amalgamated Dynamics, then cyberscanned and reassembled as a wireframe computer model using Softimage (right). The creature's outer skin was created with a series of texture maps designed in Photoshop and Amazon.***

Steve Talkowski, paid off in brutal close-ups of the alien's anatomy. One example is the *Jurassic Park*-inspired tight shot of the alien's foot landing in frame, followed by a shot in which the alien steps over camera and heads down a hallway, swishing its tail in the lens. "We spent a lot of time coming up with animation rigs that would simulate the musculature and tendons of those legs," Kopelman says. "As the foot lands on the floor in close-up, the toes spread, the mass settles out, and the calf muscle tightens. The animation rig was just as complicated as our initial geometric alien model, so some of that stuff was partially automated. Even so, the animation of the big foot landing, followed by the alien taking three more steps down the corridor, took a couple of weeks."

This explanation raises a question: why make the CG alien walk at all when there was a perfectly mobile man-in-a-suit version? "We thought we'd be doing all of this crazy action," Scollard says with a grin. "We didn't realize that nobody's ever seen the alien walk upright. The alien has tri-segmented legs — like dogs' legs — and a guy-in-a-suit can't walk like that if you want to see the legs in frame. That was a tremendous back-and-forth expedition."

Blue Sky's 50-person team researched alien ambulation by videotaping Tom Woodruff of ADI walking in the suit, which featured conventional humanoid two-jointed legs instead of the CG character's three-jointed dinosaur/ostrich-type limbs. Kopelman says, "We hoped to get the attitude of the alien's legs and upper body, and the pace of its movements, from the videotape, but its actions looked too human because it was a human. So we tried to go as far away as possible from a human with our animated walk."



The challenge for Blue Sky's animation team, which was led by Jan Carle'e, was to create a bipedal walk using tri-segmented legs which didn't look human but also weren't clumsy. "There are a limited number of ways a biped can walk and still be believable," Scollard maintains. "Our solution sounds contradictory, but the alien moves like a sort of vulnerable predator. He reduces his size and looks very protective, but he really has no fear. It's just a way for a giant creature to minimize his space. He walks at a diagonal, which I think is predatorially efficient."

Kopelman adds, "The director, Jean-Pierre Jeunet, had this vision of the alien having a very deliberate, 'I'm-gonna-get-you' gait, kind of like a gunslinger's, with a real slow, in-charge attitude. It's like John Wayne or Clint Eastwood — very purposeful. We could accomplish those slow movements because our CG model was so detailed. The tail has a nice, whippy motion and a dagger-like feel, but the head moves very slowly. The alien's motions are really graceful, very purposeful and fearless; it was very interesting to animate."

A far greater challenge still awaited Blue Sky's team, however. For a 12-minute cat-and-mouse-style chase sequence, Blue Sky's animators took the alien where it's never gone before: swimming. "The alien actually chases Ripley (Sigourney Weaver), Call (Winona Rider) and others underwater, and our work is interspersed throughout," Kopelman reveals. "That's the majority of our work. Dealing with underwater shooting and getting underwater reference presented tremendous challenges. It's quite a tense sequence."

Given the complexity of the job at hand, not all of the tension was on screen. While making the alien walk might have been demanding, getting the creature to swim was an even greater challenge. "We decided that it would propel itself with its tail," Kopelman says. "We patterned its movements on reference footage of sea iguanas. They have this crazy little swim where they tuck their legs under their bodies and use this really long tail to propel themselves. Creating the feeling that the alien was pushing itself forward with its tail was difficult, but it came off really well."

The next hurdle was making their CG alien appear to be underwater, as opposed to looking "pasted-in" over the water. Scollard recalls, "When we were shooting reference material of the suit, we found that things shot underwater don't look as if they're

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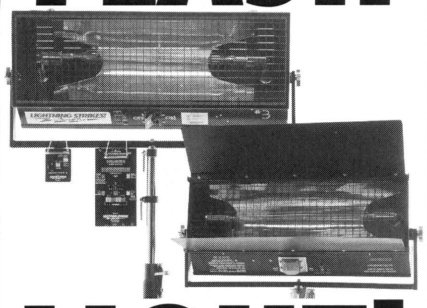

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underwater — live-action shots look like bad compositing. If the water is clear, the only clues that something is underwater are the movement, bubbles, and floating hair. Without those cues, things objects rarely look as if they're really underwater."

To more completely integrate the alien into those watery background plates, Blue Sky created interactive lighting tied into the radiant shafts of light filtering down from the surface of the water. "One of the most beautiful things in ocean documentaries is the shimmering light and shadows cast on whales by those beams of light," Kopelman says. "The guys over in our R&D department figured out a way to create that look digitally. We set up computer-generated lights in the same places where there were natural beams of light shooting through the water in the plates. When our CG alien swam through those real shafts of light, we had reflections shimmering on its dome, and its shadow was cast onto the floor. We also did a particle simulation of the air being exhaled by the actors. Our alien actually interacts with this field of bubbles, which helped make it feel like a real creature inside a 3-D environment."

The sequence climaxes when the alien makes a dramatic exit from its watery environs, leaping onto a ladder and pursuing its human prey up an elevator shaft. The startling effects shot, which ends on a full close-up of the alien as it scales the ladder, employed a clever combination of traditional and CG effects. "We attached a solid black rubber casting of the alien suit to a couple of cables, and launched it out of the water along the trajectory we wanted our digital alien to follow," Kopelman explains. "That practical effect created tons of bubbles and cavitation in the water; we then stuck our CG alien in the midst of all that turmoil, which worked incredibly well. As the alien climbed the ladder, we did a particle simulation to mimic the sparks falling down from the ceiling in the live-action plate, so all of those streamers cascaded down on the creature's elongated head and were reflected off its wet body."

Says Scollard, "The only CG aspect of that frame is the alien. We really matched what was happening in the live shot, so you see reflections from those sparks and explosions in its dome, as if it were really there. That's because our renderer, CGI Studio — which was the initial basis for Blue Sky's success — is the best ray-tracing outfit in the history of ray-tracing. There's a lot of intercutting between our alien and the man-in-the-suit creature; there are at least eight setups in the sequence, four with our CG character."

Destroying one of these mean-spirited marauders demanded another blend of live-action pyrotechnics and Blue Sky's digital alien. For a scene in which one of the humans launches a torpedo at an alien, the on-set effects team rigged up a life-size, waterbound wax alien full of explosives, guts and grisly chunks. "They detonated it and it went up in this huge, amazing fireball," Kopelman says gleefully. "There were lots of wax pieces, giant chunks of the alien, flying off. Next, we put a blank plate with no torpedo or alien at the head of our shot, added our alien swimming along, and then started up the live-action footage of the torpedo launching and cruising through the water. Then we removed the wax alien so that just the explosion remained, made some mattes, and mixed our CG alien in with that explosion, which really helped. Of course, there's a second CG alien that avoids the explosion and keeps swimming on!"

Alien Resurrection marks Blue Sky Studios' quantum leap from commercials and cult films to one of the biggest film franchises of all time. "It was exciting that our little company, tucked in Westchester, New York, was selected by 20th Century Fox to be part of a major movie legacy," Scollard says. "Like most animation/effects guys, we're fans of the *Alien* movies — it's our *Godfather* series. We're totally psyched to be working on it." ◆

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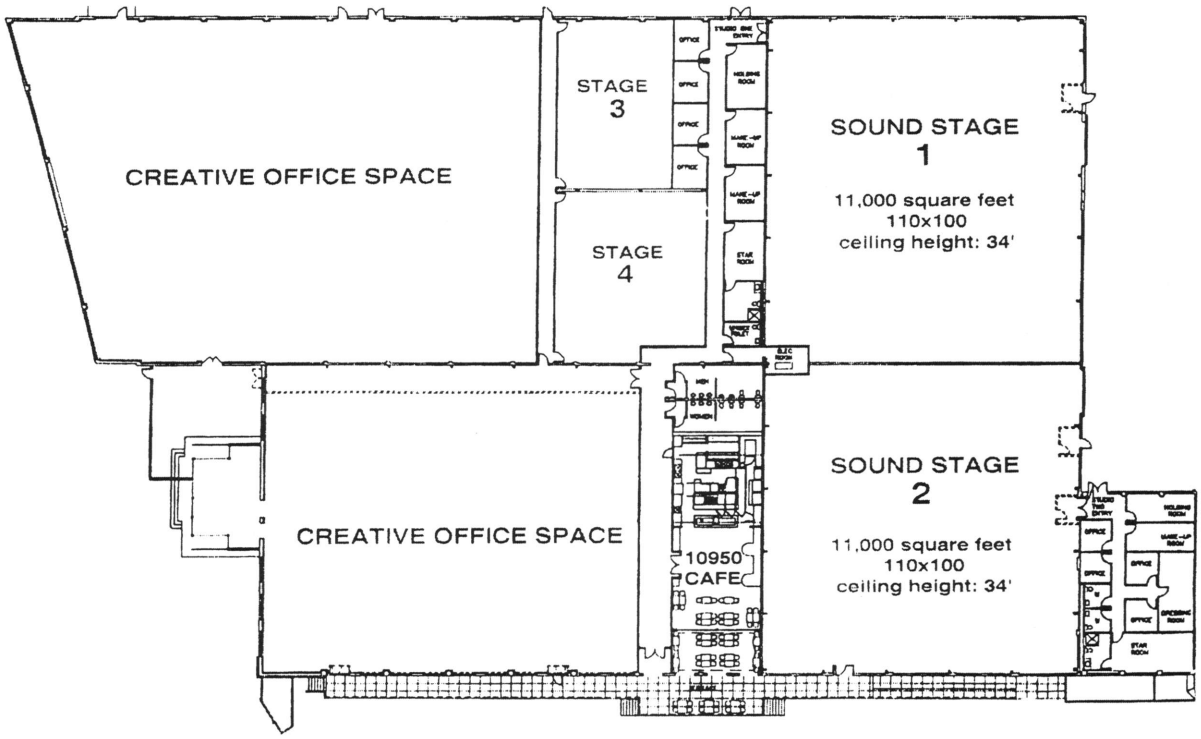

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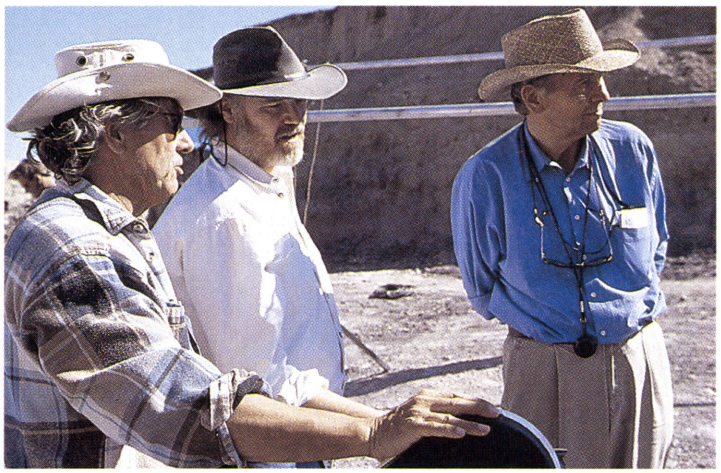
Interstellar Exterminators

Cinematographer Jost Vacano, ASC, BVK and a team of effects experts conjure up marauding swarms of immense insects for *Starship Troopers*.

by Les Paul Robley

In 1959, science-fiction writer Robert A. Heinlein published *Starship Troopers*, an award-winning novel detailing Earth's battles against mammoth insectoids, as well as the lives of the soldiers who fought in the war. But adapting the epic scope of Heinlein's classic tome for the cinema necessitated nearly 40 years' worth of special effects innovations. The enormous amount of effects work entailed by such a project, however, is nothing new for director Paul Verhoeven and cinematographer Jost Vacano, ASC, BVK, who had previously collaborated on the future-flung films *RoboCop* and *Total Recall* (see *AC* July '90).



Director Paul Verhoeven and (on far right) cinematographer Jost Vacano on location in Hell's Half Acre, a county park west of Casper, Wyoming famed for its otherwordly rock formations.

"What's unexpected in this film are primarily the bugs — they're the main actors," explains Vacano. "And they're coming out of the computer, which meant that we had to shoot things without having the main actors in frame — they were only in our minds.

"Whether you're doing opticals or using computer-generated images, the procedures [for the cinematographer] are very similar," Vacano continues. "The main artistic problem is that you have to frame objects which are not there. You always have to keep in mind the size of the bugs — even the eyelines are important. You start working with cutouts, or long poles with flags on top, so you can determine the height of the bugs. This made it difficult for me, the actors, and especially A-camera operators Billy O'Drobinak and Mark Emery Moore."

Vacano is one of two cameramen employed by Verhoeven throughout his feature-film career in both Holland and America — the other being cinematographer/ director Jan DeBont, ASC. In the past, the Dutch director staggered his relationship with each cameraman: he would work with one on a pair of movies, and then switch to the other for his next two cinematic endeavors.

Born in Munich, Vacano began shooting for Verhoeven on the World War II-resistance drama *Soldier of Orange*, followed by the controversial coming-of-age film *Spetters*. Since their pair of aforementioned science-fiction epics, Vacano and Verhoeven have worked together on *Showgirls* (*AC* Nov. '95). The cinematographer's other credits include his Oscar-nominated imagery on *Das Boot* (*AC* May '97), *The Neverending Story*, *The Lost Honor of Katharina Blum*, *The 21 Hours of Munich*, *52 Pick-Up*, *Rocket Gibraltar* and *Untamed Heart*.

With DeBont concentrating on his directorial career, Vacano may find himself shooting even more of Verhoeven's films, although the cinematographer says that he has found their existing arrangement to be quite satisfying. "Alternating every two years has kept our working relationship very fresh," notes Vacano. "Back in Germany, I had an experience where I worked for a director on maybe 10 to 15 films in a row. Working together too many times can be dangerous, because you start to develop a routine and you don't have to talk anymore. The cameraman knows exactly how the director will stage the action, and the director knows exactly how the director of photography will shoot the whole film. That can become a bit sterile. The way Jan and I alternated with Paul over the course of a two-film period always resulted in a fresh perspective and a new energy."

Location shooting for *Starship Troopers* in Hell's Half Acre (a county park west of Casper, Wyoming) and the Badlands of South Dakota began in March 1996 and lasted four long months. Hell's Half Acre is a remote canyon with strange rock formations — well-suited to depict Tango Urilla, an alien world where Earth's troopers make their last stand against the rampaging insects. The crew built roads which navigated to the bottom of the crevices so that the art department could erect the humans' command center; equipment not transportable by four-wheel-drive vehicles had to be lowered into the pit by helicopter. "That was the biggest set I've ever lit in my life!" Vacano exclaims. "Night-lighting a landscape is always a problem: it's usually lit by the moon or a distant light source. Whatever you can duplicate is always relatively close [to the camera]. This set was about a mile long and a half-mile wide, and it was absolutely inaccessible to Musco Lights; there was no way to get fixtures into that area. So we ended up putting about 25 6K HMI Pars

Photos by Stephen Vaughan, courtesy of Columbia/TriStar Pictures.

on one of the cliffs by helicopter, and we staged the action in a way which never showed the top of that hill. Those Pars became our main lighting source, and we hid other lights behind rocks and on many other hills.

"Because the cliff with the lighting was otherwise inaccessible, we built a secure path so the electricians could climb to the top: it took about a half-hour to 45 minutes to get up there. The ballasts for the lights got very hot and stayed warm for a few hours after wrap. Attracted by the heat, hundreds of small, young scorpions took refuge on top of the ballasts. We called it 'Scorpion Hill.'"

Extreme, desert-like climactic conditions made for hot, dusty days and quite frigid nights. After two shooting days, the ballasts' sensitive electronics succumbed to the elements, causing one-third of Vacano's Par lights to go out. The production had to constantly fly in new fixtures. Later, two weeks of constant rainfall forced the production to evacuate the site. The crew took refuge in a warehouse, where, because the production was on an evening schedule, daylight interior scenes were shot at night.

Recalls motion-control operator Mark Hardin, "One night, we ran into a difficult situation where we had a very wide panning shot with the troops charging over one road, up a slope, over the top of the hill and down the opposite side. Because of the scope of the shot, we had to back everybody onto a little pinnacle so the crew would not be visible. The motion-control system was parked on a little horizontal pad; we had just gotten the shot and were starting to shoot the clean reference passes when it began to rain. We were down in these pits of bentonite, which is mined for use as an oil-drilling lubricant. As it started to rain, this stuff became very slick. For the next two hours we wrapped as much as we could out of there using four-wheel-drive Gators. Everything was coated with muck since it was just pouring rain. The stuff builds up on the soles of your shoes, so you're slipping around wearing six-inch Frankenstein boots. Then it continued to rain for the next two weeks. [When we got back], gaffer Jim Grce had miles and miles of electrical line buried, in some cases, under seven feet of mud." After the rains subsided, whatever couldn't be unearthed from the bentonite pit — be it cable, ballasts or cars — remained entombed in the area.

Prior to principle photography, the production team and visual effects crew conducted motion control and camera movement recording tests at Tippett Studio in Berkeley, California. Preliminary full-dress rehearsals were held in

Above: ***Terran troops prepare for a final assault against insect marauders on planet Tango Urilla. This canyon in Hell's Half Acre was so inaccessible that equipment had to be transported via 4-wheel drive (on crew constructed roadways) and helicopter.***
Left: ***Earth's soldiers stand their ground.***

the East Bay suburb of Walnut Creek, using General Lift's motion-control equipment. Joe Lewis provided two RotoFlex Field Units with nodal pan-and-tilt rotators, encoded pan/tilt handles (wheels), and focus stepper motors with encoders. Each system was totally enclosed inside rugged, all-weather, rack-mounted systems containing a CPU, keyboard, accessory drawer and four Point Blank drivers designed by Steve Kosakura. "Someone dressed up as one of the soldiers and we did some pre-programmed moves using all of the digital markers that the CGI people used for tracking," Lewis recalls. "We used bright orange tennis balls for reference. We did a full rehearsal of all the procedures we would follow on location, because for this type of effects photography, you must have a complete slate and intensive camera reports that provide pertinent information: the time of day, angle of sunlight and camera position."

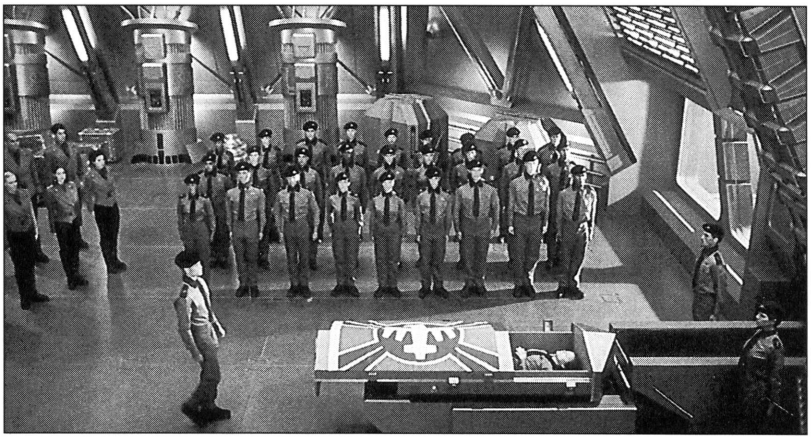
To facilitate their effects work, Tippett's crew had to map out Hell's Half Acre with an aerial radar-based scanning device prior to shooting. Notes Hardin, "This gave them a precise topographical mapping of the area's terrain which allowed them to identify various features in the landscape. Prior to that, they had placed sensor markers on those landscape features which stood out on the 'topo maps.' By using these features as target points, they were able to reference the camera position against their tracking markers from where they took their measurements. These tracking markers correspond to paths where CGI bugs would later be placed."

For first-unit photography, most camera moves were encoded live rather than preprogrammed. According to motion-control operator Mark Hardin, this process often left him feeling more like a "data sponge" than a programmer. "My duties consisted of recording and playing back the moves generated by the camera operator's pan and tilt, and the AC's focusing. This accommodated the CGI crew under the direction of Phil Tippett so that they could have accurate data to plug into their Softimage systems; every action on the background plate would have an equal reaction on the CGI data. Everything we did was replicated for both the first- and second-unit camera packages with identical Kuper systems, pan/tilt heads, and drivers, so that everything was the same."

Hardin operated the first-unit motion control during the first 100 days of location shooting in Hell's Half Acre and the Badlands; I personally took over during the final two weeks. Portia DiGiovanni handled all of the second-unit Kuper systems operation in the desert, as well as the four months of live-action filming which followed on stages at Sony Studios in Culver City, California.

According to Joe Lewis, the second-unit camera operator sometimes preferred using an encoded O'Connor 100 fluid head instead of the typical wheels arrangement. The encoder was calibrated exactly to the motorized head so that 90 degrees on the O'Connor would equal 90 degrees on the Pacific Scientific stepper-driven head. The operator could then adjust the gain sensitivity and smoothness of the encoder. Noise from the steppers was not a concern due to the reverberation of live ammunition rounds taking place during the shots. Says Lewis, "Second-unit director of photography Anette Haellmigk would say which move she liked and we'd just play back the same move and let the actors perform to the camera move, especially when there was a shot involving pyro effects; special effects consultant John Richardson would have to time either an explosion or a squib to the move."

In another unusual effects sequence, Lewis' six-axis GenuFlex with track, boom, swing, pan, tilt and focus was utilized for a shot in which trooper Johnny Rico (Casper Van Dien) is having his shattered



Right: ***Solemn troopers stand at attention as a fallen commander's coffin is jettisoned into space.*** **Below:** ***Soldiers file onto carrier dropships aboard the*** **Rodger Young.** ***This scene is actually an elaborate composite utilizing miniatures — the carrier's upper body — with live-action elements photographed on the Sony Studios stages in Culver City (see photo on page 62).***

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Vacano and his crew primarily utilized Kodak's 500 ASA 5298 for night scenes and 50 ASA 5245 for daylight exteriors. Since each emulsion has a certain contrast curve, the effects companies needed specific logistical information regarding selected takes in order to create convincing CGI images and composites. Therefore, extensive notes on sun angle, compass headings, artificial-light inclinations and footcandle readings were taken by a camera-surveying team, headed by Steve Redding and second-unit effects supervisor Jay Riddle. When the motion-control unit was inactive, we would fill in for people on his crew. In addition, Cathy Waterman operated an information-gathering device known as theodolite, or surveyor's transit. This instrument gave a very precise digital readout for pan-and-tilt, with a timed response metering device which emitted a pulse. By timing the pulse's return, the device could accurately determine the distance to any object.

Above: ***A nocturnal firefight on the surface of Tango Urilla, one of Vacano's greater lighting challenges on the picture.***
Right: ***Ambush of the killer insectoids! Night exteriors were shot on Kodak's tungsten-balanced 5298 stock, with uncorrected HMI lighting used to create a cold blue cast.***

leg mended by an "auto-doc" robot. "We programmed a move starting from his head, down his body to his leg," Lewis explains. "The first pass was shot live; the second pass was done with a prosthetic leg featuring a huge, gaping wound so that Pete Kuran of VCE could later composite the two."

During shooting in Wyoming and South Dakota, the motion-control equipment was normally set up on the back of a four-wheel-drive RV unit so that it could be positioned anywhere on the location. When the RVs were unavailable, or the desert-like terrain became too rugged, the systems sat on Magliner hand-trucks and were physically muscled into position. "The systems could be set up fairly quickly," recalled Joe Lewis. "More often than not, we were ready before the first unit was ready to do the shot."

A typical shooting procedure began with the camera crew encoding a shot of the actors fighting the non-existent bugs. Selected takes were played back via motion-control and a clean pass was then made — sans actors — for background plate purposes. When time permitted, a reference pass with visual markers was also taken. Next, a large 18-percent neutral-gray sphere was rolled into the positions where the creatures would be composited into frame, followed by a exposure of a short burst of film (only a few frames were necessary for reference). The gray ball informed the 3-D animators of the exact light situation for that specific shooting time.

Elaborating upon this strategy, Vacano says, "You could see, for instance, if it was a side light or a top light. We could also look at the shadow areas, and also check the relationship between the bright areas on the ball and the fill light on the opposite side. This was very useful for Tippett, because he had to tell the computers exactly what the light situation was, where the key light was coming from [back, front, side], the angle of the light [toplight for midday or low angle for close to sunrise or sunset], the contrast situation [key-to-fill ratio, artificial or real fill light] or if they all had to repeat. Whatever we did, he had to follow [our setups] precisely, not only in the perspective and primary shooting angles, but even in the negative stock, so as to get the same image characteristics out of his computer."

"They would try to position the theodolite at one of the known landscape features identified in the topo fly-over," recalls Hardin. "They would then place fluorescent-painted cubes and balls over the landscape where the bugs would be, and take theodolite readings to these reference markers and the camera. They lined up [the cross-hairs] on some specific target placed in the shot and, by aiming at that target, obtain a pan, tilt and distance measurement. When the shot was finished, we would set up another theodolite marker, which was a little prism device, on a ma-

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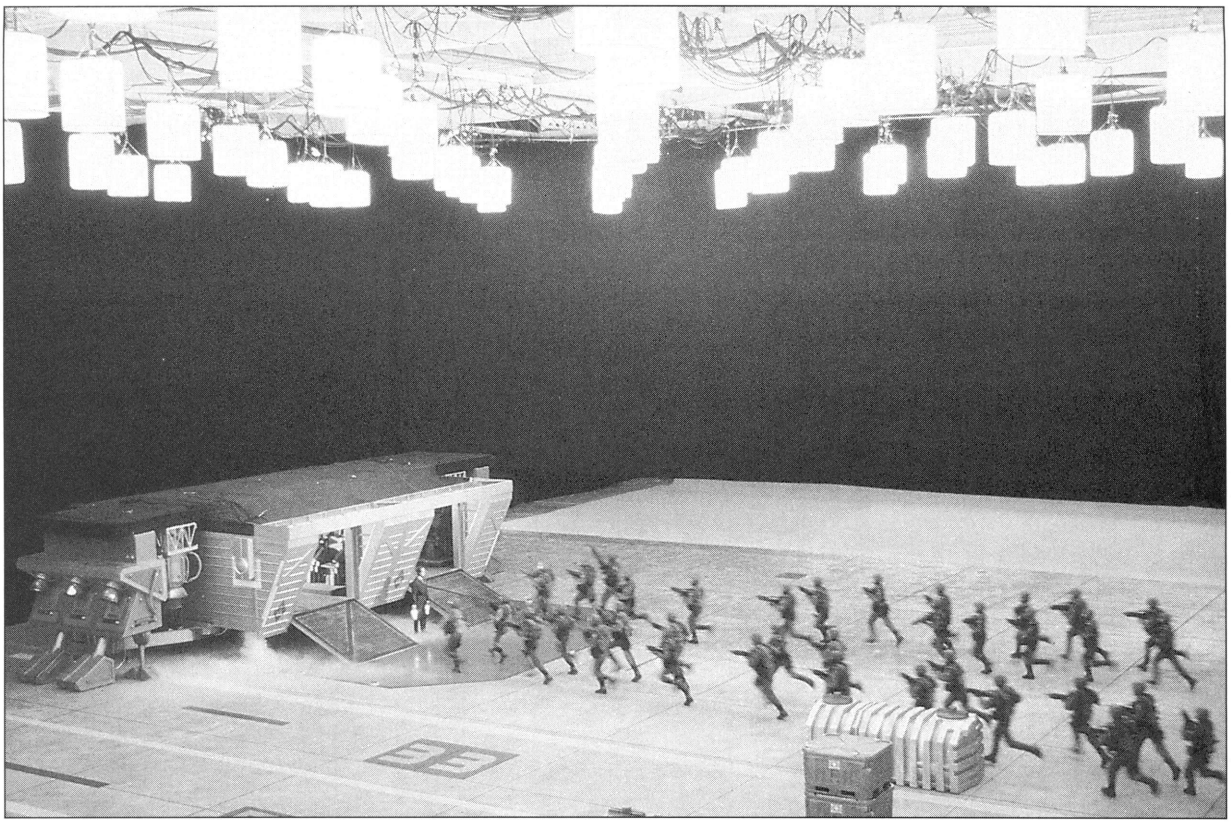

Space lights illuminate a live-action effects element involving terran troopers, photographed at Sony Studios. The setup was repeated and shot from various angles, which were then combined to multiply the troopers' numbers, and later composited with miniature spacecraft models (see finished shot on page 58).

chined mount that was the same as a standard dovetail plate mount. The camera came off and the prism was slipped on, placing it exactly in the nodal point for the given lens that we were using. We then took readings of that prism from the same theodolite position that measured all the other bug markers, so we knew where the camera existed in space. Using all of this data in conjunction with their Softimage software, Tippett Studio and the other effects companies were able to place their CG camera in space quite precisely in the same position as the actual production camera."

On a humorous note, military/technical advisor Dale Dye and some of the actors playing the embattled troopers regarded Tippett's personnel as the enemy, due to the fact that the then-invisible bugs were killing off most of their comrades.

A key logistical problem for the production turned out to be the sheer number of effects shots that needed to be done per day. Because of this workload, portions of *Starship Troopers* were doled out to nearly every California-based effects house, including Sony Pictures ImageWorks, Tippett Studio, Industrial Light & Magic, VCE and Boss Film. The extensive compositing schedule eventually led to the film's release date being pushed back from July 4 to November 7. First assistant cameraman Greg Irwin comments, "On a lot of movies, you have one visual effects crew handling the effects shots. Here, the first unit was dealing with normal photography and the effects photography [at the same time], along with the different companies that were conducting the visual effects. The most fun part was in learning the different protocols that applied to each visual effects house. Tippett had one set of rules we had to follow to prep each shot, whereas Sony had a whole other set of criteria. We had to handle this on first unit in addition to normal photography!"

Vacano adds, "Each effects house has a different way of working; for example, one might prefer different negative stocks. Since almost every shot had effects, I would have to think: 'Is Boss or ILM doing this effect?' and then do the shot a certain way. That's unusual. Normally, one company will works exclusively on a film. We even had a continuous second unit for six months. Typically, you have them only for a selected period."

Given each effects company's preference for distinct film stocks and developing laboratories, Vacano found the film's timing process to be more laborious than usual. The various sources of original negative have lent a slight variation to the film's overall look.

Taking such discrepancies into account, the cinematographer offers this advice regarding the use of filtration in effects-laden photography: "Normally, you use filters according to the light situation or for a certain artistic effect. If you have a deep blue sky and a dark ground, you would filter differently than having an overcast sky, which gives much less contrast. The Badlands offered more traditional desert shooting — very rocky, with sandy colors. When shooting effects, it's always dangerous if you go too heavy with diffusion filters, because you always try to keep your negative as clear and as crisp as possible. It's always easier to degrade it later than to go the other way." ➢

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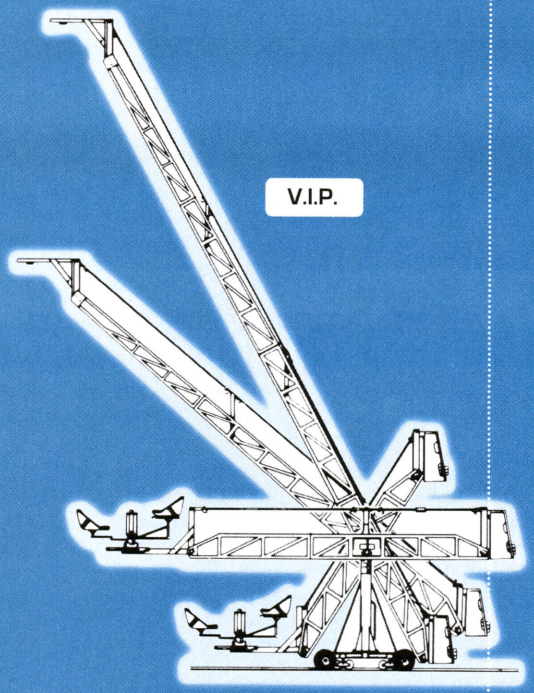

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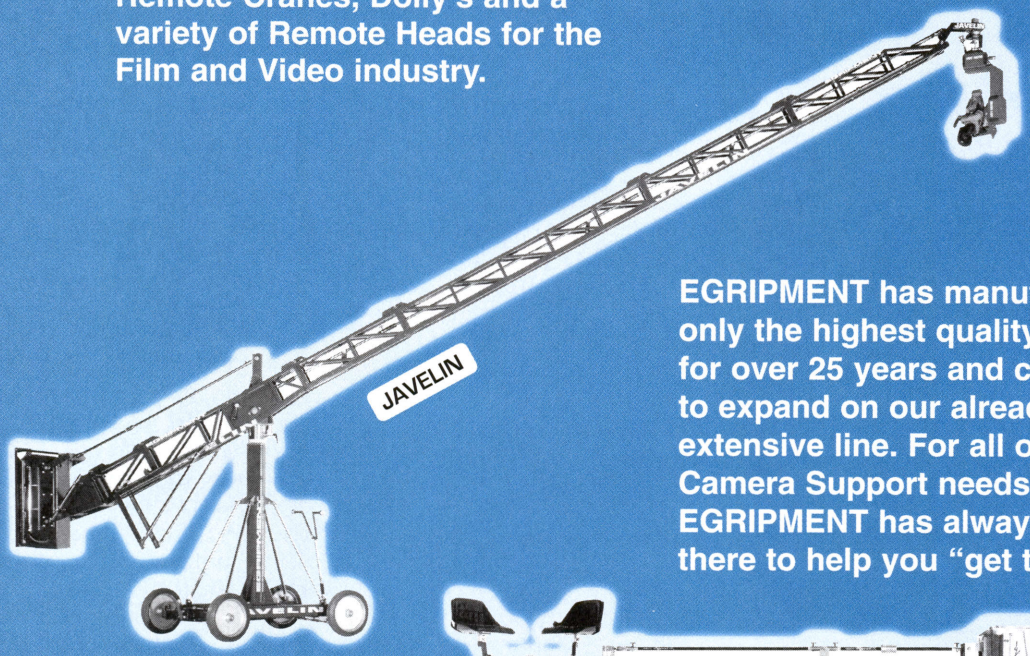

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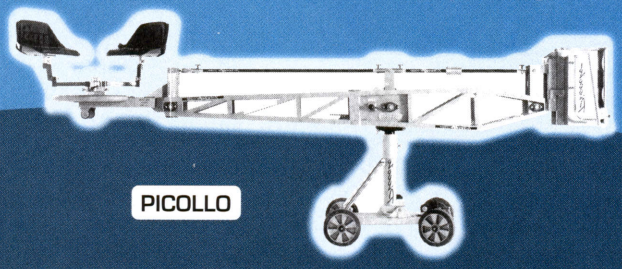

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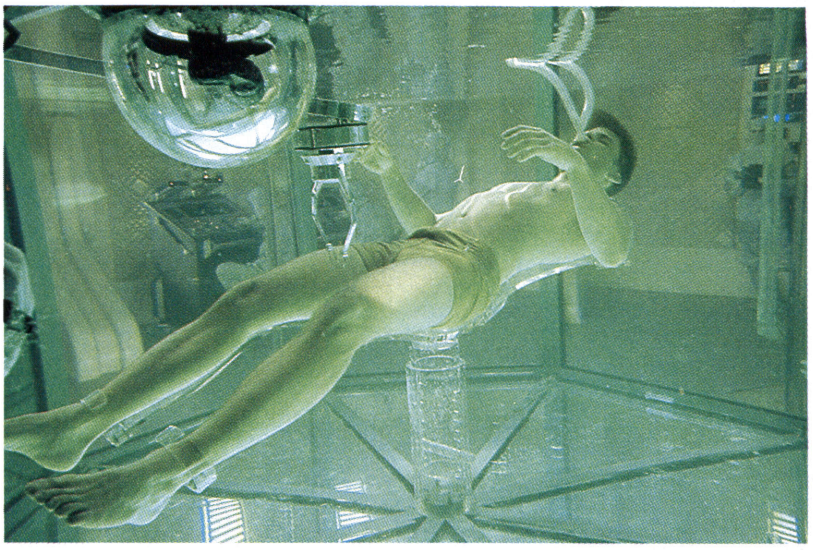


Immersed in a fluid stasis tank, wounded trooper Johnny Rico (Casper Van Dien) undergoes surgery from an automated medic.

In addition to Vacano's own personal Arriflex package, which he prefers to use, the camera crew carried five other camera bodies used for special purposes: one Clairmont BL, one 4-perf Beaumont effects camera from ILM, a VistaVision 8-perf, and a Moviecam Compact for the Steadicam Pro system. Determining which camera body would perform a given shot depended upon which visual effects company would be compositing effects into the scene. "We mostly shot 4-perf for the CGI bugs [done by Tippett]," offers Vacano, "and 8-perf for the optical plates for Sony. But whatever perforations you're using, the registration must be extremely steady [which is why we preferred the Beaumont camera]. However, the production chose to shoot the film in the 1.85:1 aspect ratio, and with the quality of digital effects today, 35mm 4-perf is good enough for many shots."

Vacano's preference for using his own camera equipment meant that all of his Zeiss prime lenses had to be pre-calibrated into the Kuper motion-control systems for focus information and exact field-of-view. "Even with three similar lenses, the field-of-view will always be a little bit different," he explains. "All lenses have certain tolerances, and when you're talking about a 50mm lens, there might be slight variances — one might actually be a 49mm, while another could be a 51mm. Maybe you'll find one which is exactly 50mm, but very rarely. So when Tippett is repeating things very precisely in his computer, he has to know exactly what the lens is, as the viewing angle always varies."

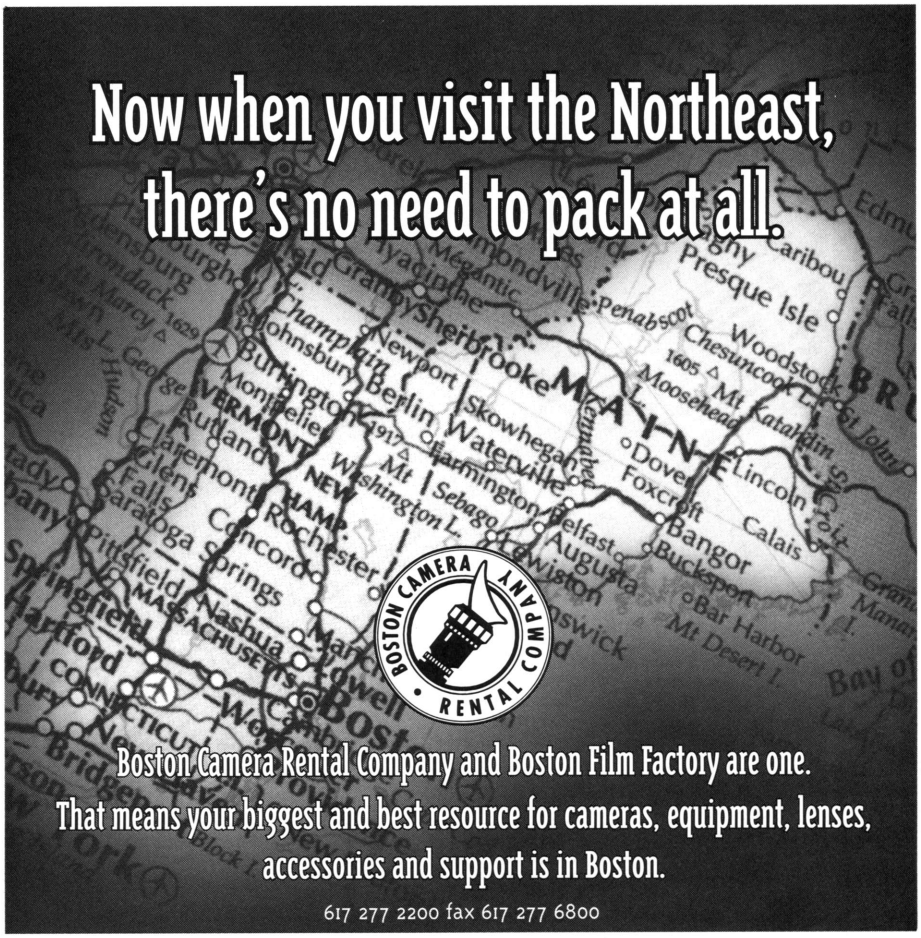
Before the start of live-action filming near Casper, Wyoming, Hardin and second-unit operator Portia DiGiovanni had a full day to calibrate Vacano's 15 Zeiss prime lenses and create focus tables. While this occurred, second-unit visual effects cameraman Rick Fichter, plate camera first assistant Michael "Spock" Bienstock and Joe Lewis performed an exhaustive nodalization for each lens. "We set up three Century stands at different distances from the camera [one close, the others far from the lens] in the hotel lobby," notes Lewis. "We then moved the lens along the Arri dovetail bridge plate and panned the camera until there was no parallax shift between the C-stands. We made markings on the bridge plate for each nodal position. Every rotator head was measured this way, and each plate lived with that particular head. Whenever we changed a lens, the camera position was physically moved fore or aft on the bridge plate so that it was as close to nodal as possible."

It's possible to check the field-of-view via a specified camera aperture dimension focused at a certain distance onto a chart with

known object sizes. By entering the three known values, one can solve for the fourth using simple lens formulas, and then calculate the exact focal length. For a gate aperture of a given size and a lens of a given focal length, one can precisely calculate the horizontal and vertical angle of view necessary for the computer to know the proper image-size relationship.

Since lens focus barrels are non-linear and vary from lens to lens, each lens had to be calibrated in feet. That way, the CGI crew would later know where the taking lens was focused on the subject at any given frame during location shooting, without having to recalculate the position. This special task called upon the Kuper Table Axes function. By making a master axis of 200 frames for each lens, an actual footage graph can be slaved to this master axis. The footage axis "looks up" its position on the graph for any given focus position from a "special table file" move. Wherever the camera assistant moves the encoder, the stepper motor on the lens will follow suit and the pulses will be output in feet to a separate unused channel in the Kuper 24-channel software. This can be then saved (with the pan/tilt degrees information) as an ASCII move file for position reference on a frame-by-frame basis.

The Kuper file conversion is able to save the move information with the "center data on blurred image" (or shutter-open position), which follows the conventions of a computer graphics system. This will produce the best match between photographed and graphic image — the CGI will be centered on the image blur of the "live" photography. But Tippett's crew wanted more positions per frame than the standard single position-per-frame offered by the Kuper software. Thus, when saving a move in text format, motion-control operator Mark Hardin changed the data/visual from a shooting resolution of "four" to "one," which increased the total frame count by four times the normal move length. This allowed four position counts per move frame, which was a more than adequate reproduction for computer-

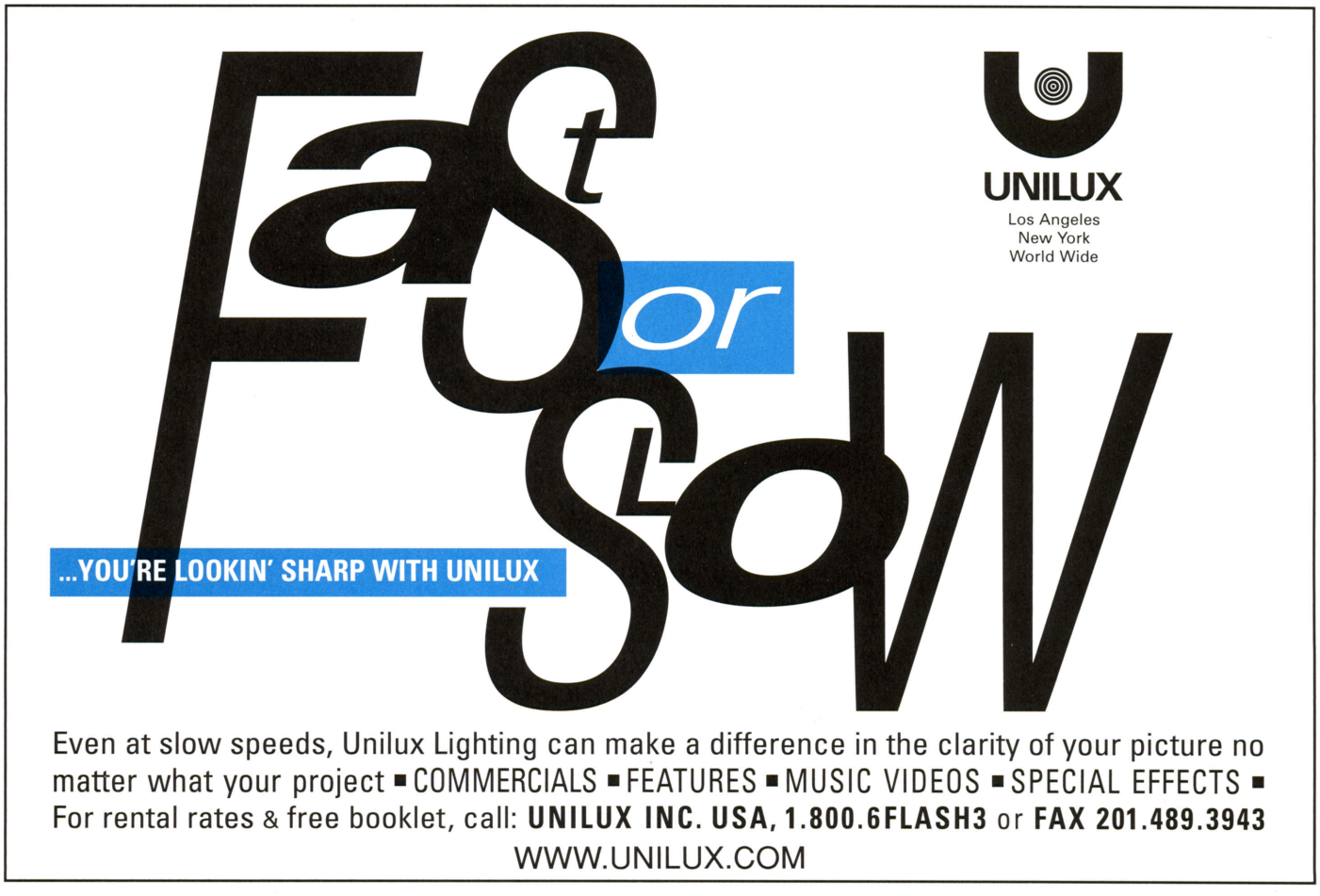


generated images.

Though the preparation for and data gathering required by the *Troopers* effects teams was daunting, the technology created unique opportunities for the filmmakers — especially when they were faced with unavoidable problems. Greg Irwin remembers a very impressive effects shot that occurred early on in the shoot. He details, "Day three required a Power Pod — a normal 'hot-head' crane — to which we mounted a Beaumont 4-perf effects camera. We tried to do a manual camera move in the 30 mile-per-hour winds that are inherent to the Wyoming plains. Tippett had to scan each frame of this 'wild' crane move to absorb the shake out of the camera as it was blowing in the strong wind. The final shot depicted thousands of these creatures swarming over the hill onto our heroes. Everyone was afraid of that shot, and we did it on the third day when nobody really knew what they were doing yet. The shot is in all the trailers, though, and it's awesome! Every arachnid warrior has a shadow and a dust cloud coming up as they storm the alien landscape." This shot demonstrates the true value of modern computer technology; even if there's an unstable crane shot, one can track elements in the frame and make it seem steady.

For "wild" shots not requiring motion-control, Tippet's crew had to amass data on solar angle and trajectories. For these non-motion-control shots, the camera operators needed to keep a certain number of reference markers in frame for Tippett's animators. According to Steadicam first assistant Todd Schlopy, this was more difficult when shooting Steadicam at night, since the gyrostabilized rig's CRT monitor is basically a black-and-white screen — which made it problematic for operator Mark Moore to ascertain whether or not the small squares and triangle targets were in frame. "The Pro model suspended camera system offers a superior viewing screen, however, and is more trouble-free when shooting in extreme locations where dust is prevalent," Schlopy maintains. "We reloaded inside a tent just to keep the dirt out of the cameras — especially the Beaumont, which is a very sensitive piece of equipment. In the Pro model, if something goes wrong, all of the electronics are contained in one simple monitor — you just slap a new one on. The batteries are excellent, and there are gyros available now. It's just an outstanding Steadicam setup; it really gives you many options as far as shooting. You can use whatever camera the arm can handle: 4-perf or 8-perf. There is a new arm coming out that will even accommodate more weight."

In spite of all the technical travails entailed in making such a complex and effects-reliant film as *Starship Troopers*, not all crewmembers found the grueling hours and difficult situations to be disheartening. Comments first assistant Irwin, who worked with Vacano and Verhoeven on *Showgirls*, "I think *Troopers* is the most fun we've ever had, and the most we've ever gotten into photographing a movie." ◆



Starship Maneuvers

Sony Imageworks and its allies develop and decimate a stellar armada for *Starship Troopers*.

by Ron Magid

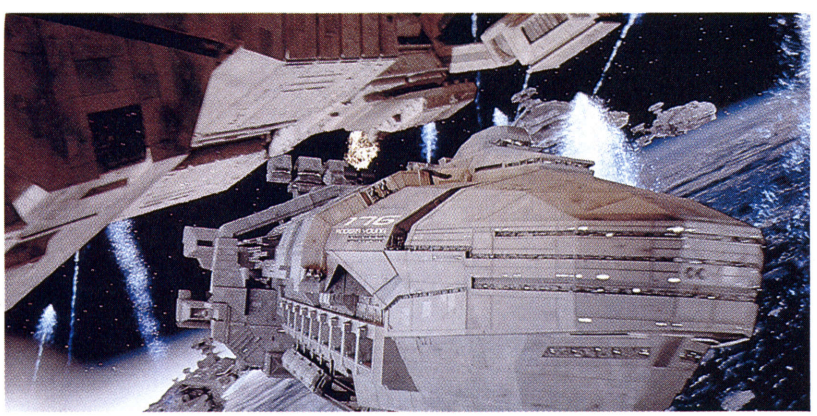
Visual effects supervisor Scott Anderson has traversed a long and winding road from the sweet barnyard shenanigans of *Babe* to the intergalactic battles of *Starship Troopers*. After earning an Oscar for Best Visual Effects on *Babe* with Rhythm & Hues, Anderson began a three-year-long association with Sony Pictures Imageworks, contributing CG water and digital shark elements to *James and the Giant Peach* and later heading up *Die Hard: With A Vengeance*. Anderson then signed onto the ill-fated Roman Polanski project *The Double*. When that film floundered, Anderson enlisted for duty on *Troopers* while Imageworks chief Ken Ralston made *Contact* with director Robert Zemeckis.

Remarkably, Anderson has never before supervised effects for a science-fiction film. But in his role as *Troopers'* senior visual effects supervisor — working alongside visual effects supervisor Dan Radford — Anderson received the opportunity to experiment with concepts he'd always hoped to see in outer space. Director Paul Verhoeven (*RoboCop, Total Recall*) fully supported Anderson's ideas, and even added a few of his own to the mix: "When I first started talking to Paul, he was aiming to create this epic war film in space as well as on the ground. Dan Radford did a lot of work before I came on, but I worked very closely with Paul, designing some major sequences which really hadn't been tackled yet.

"The majority of our shots take place over various alien worlds as the troopers' carrier ships come into orbit, and during the subsequent space battles. This was a massive project, and we had about 270 people working for Imageworks during the course of the production — we're doing about 120 shots."

Troopers' scale became so immense that ILM and Boss Film were solicited for several sequences while the giant extraterrestrial insects were supervised entirely by animation maestro Phil Tippett (see accompanying story). This left Anderson and his Imageworks troupe to concentrate on the bulk of the starbound scenes, including the film's two climactic battles as witnessed by the crew of the starship *Rodger Young*. The first skirmish is the terran troopers' blitzkrieg of the planet Klendathu. "The beginning of the sequence is almost idyllic," Anderson says. "We see the troopers getting into their drop ships, and getting instructions from their commanders. Then the drop ships are lifted from the interior of the spacetanker into drop position on the exterior. As the troops leave the fleet, there's a 180-degree view through twin suns of the drop ships going down to the planet, in which you get this big beauty shot of Klendathu. The ships begin bombarding the planet and the bugs start attacking the fleet, firing these plasma bursts at them from the surface. The tension slowly builds through the climax of the sequence, where two huge spacetankers, the *Marshall* and the *Yamamoto*, collide."

Under Anderson and Radford's supervision, Pixel Liberation Front, which has offices in



Photos courtesy of Columbia/TriStar Pictures.

The crew of the* Rodger Young *is witness to the bugs' plasma weapon assault on their armada. Sony Imageworks used both scale-model and digital versions of the ships to create the fleet. The plasma bursts were created with a combination of Dynamation, the Wavefront particle system program, and Birps, the firm's in-house conversion and lighting tool.

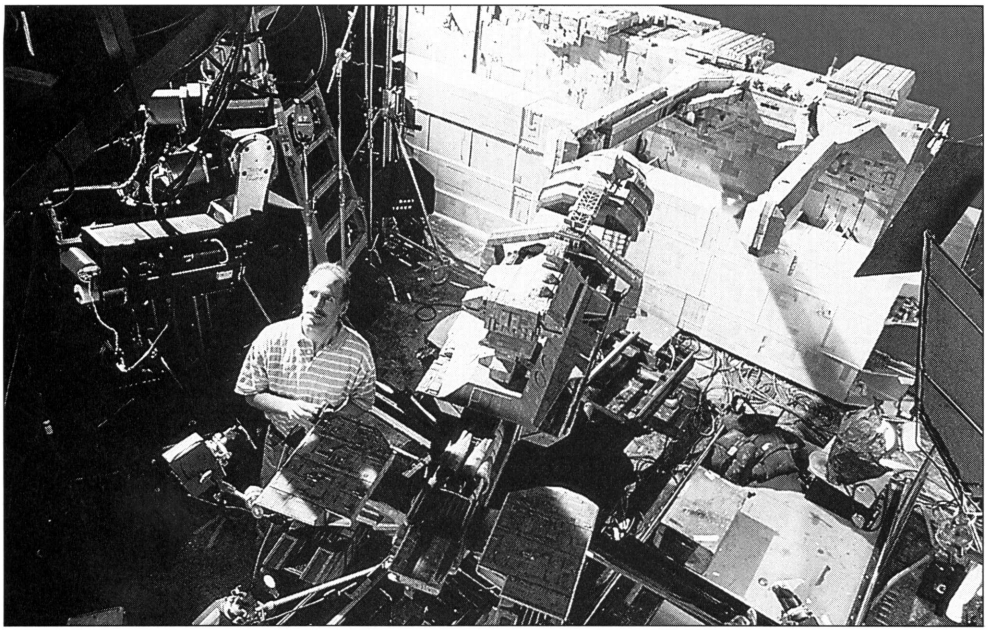


Photo by Sean Casey.

A* Rodger Young*-class starship is poised on a miniature stage, docked at a space station for loading troops. The 9' craft was built by Imageworks' model division, Thunderstone.

New York and Venice, California, previsualized sections of these battle sequences as digital animatics, using a hybrid system of Silicon Graphics and Windows NT workstations running Softimage 3-D software. According to PLF supervisor Colin Green, "Pre-vis made it easier to choreograph and track the elements. There were so many layers and so much movement that without pre-vis, it would have been much more difficult to shoot every piece correctly."

PLF's pre-vis work involved the creation of a virtual set representing the placement and action of the motion-control rigs, cameras, lighting and other equipment. The animatics also consisted of preliminary blocking for CGI elements, including the bug plasma and many spacecraft.

Imageworks' model division, Thunderstone, had their hands full constructing Earth's starfleet, including drop ships, reconnaissance craft and attack fighters. "We built all of the primary models of all the different classes of ships, and some maquettes," Anderson recalls. "In the fleet shots, we've littered space with drop ships — the smaller carrier ships — as well as cargo ships shuttling between the major ships, and what we call 'Tenders.' We also have a few little tugboat-type ships designed for the spacedock portion of the film. We built a large-scale Attack Fighter — the equivalent of a fighter jet — for close-up shots of the assault on Tango Urilla, and we also built pyro versions of the fighters to blow up."

The fleet is comprised mostly of humongous carriers like the *Rodger Young*, so Imageworks dubbed the massive troop carriers the "*Rodger Young* class." Says Anderson with a smile, "It's like riding with Car 54: we're always with them, through thick and thin." Thunderstone built several versions of the *Rodger Young*-class ships, differentiating each with various military-inspired paint jobs: gray-green for the Army, blue-gray for the Navy and tan for the remaining ground troops. The fleet's flagship was coated in Army green. "We built five 9' *Rodger Young*-class ships for various functions, and numerous pyro and collision models," Anderson states. "We also had eight small 22" ships to fill out the majority of the fleet, which is hard to do with 9' ships. We only had one 18' *Rodger Young*, so when Boss Film needed a larger-scale ship for a shot involving a bug meteor, we shared some parts with them; ILM built their own 9' *Rodger Young* and some tiny 3' versions for the Klendathu sequence."

But the colossal scale of *Troopers* made it virtually impossible for Imageworks to create the epic sweep sought by Verhoeven solely through the use of miniatures. "Each time you see a fleet, it has in the neighborhood of 50 *Rodger Young*-class ships," Anderson explains. "In the big sweeping shots, all of the background action and all of the detail work was done with intermixed digital and miniature ships. We'll have 15 model ships and then another 100 digital ships in a shot. The larger-scale versions of all of the models were done traditionally, except for the Tenders and the tugs.

"We used a combination of Alias software to model the ships and Wavefront's TAV choreography to animate them. We also used Renderman for rendering, along with Birps, our in-house conversion and lighting tool. We did almost everything on Silicon Graphics workstations. Compositing was primarily done using Wavefront's Composer, but we also composited shots on the Cineon and the Inferno — intercutting all of those shots. There were different trade-offs and options with each package, so we targeted shots to each platform depending on their respective strengths."

In the *Marshall-Yamamoto* collision and other sequences, Anderson opted to shoot multiple spaceships simultaneously in the same scene via motion control, rather than taking the traditional tactic of shooting the ships one at a time. "We did multiple ships for the background, some multiples for the midground, and then almost entirely singles for hero shots and hero ships," Anderson explains. "It was a matter of practicality. We had to find ways to make our work more efficient to finish a movie of this scope. Even shooting multiple ships together, we still wound up with approximately 2,000 selected model elements. That number would have been multiplied almost five or six times if we had done individual ships, due to the multiple beauty, lighting and matte passes needed for each ship. We also tried to minimize the number of passes wherever possible. We found some nice light, bright fiber-optic sources for the models, which enabled us to combine fiber-optic passes with beauty passes — for nice savings. While custom lights

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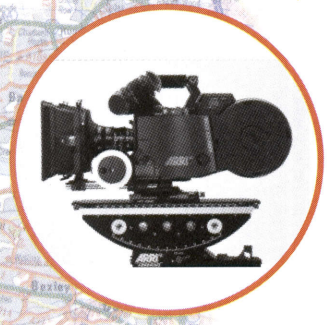

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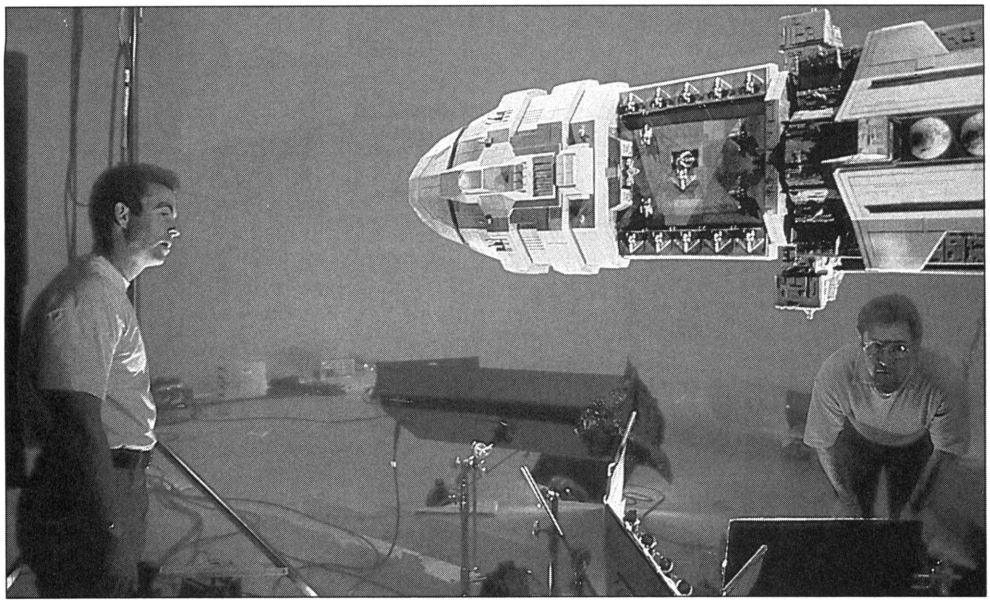

Photo by Michael Middleton.

Regarding the filming of the starship models for compositing, visual effects supervisor Scott Anderson remarks, "We used a real combination of techniques, including UV green, red and blue as hider and helper passes, but our predominant screen methodology was Erland's digital blue."

like the engine sources would require separate passes because they burned so hot, we tried to do as much practically as possible. Our stage crew worked out nice ways of getting scale lights on the models, allowing us to shoot some spill areas in combination with other lighting passes."

Overseeing much of the motion-control work was lead effects cinematographer Pete Kozachik, whom Anderson had worked with on *James and the Giant Peach* (see *AC* May 1996). For nine intense months, three *Troopers* motion-control units, headed by Verhoeven veteran Alex Funke (*Total Recall*) shot on separate stages at SIR Studios with cinematographers Scott Campbell and Josh Kirshner. "We shot almost everything on Kodak 5248," Anderson says. "We used a real combination of techniques, including UV green, red and blue as hider and helper passes, but our predominant screen methodology was Erland's digital blue. That was partly due to the scanning technology and software we use, but I've always had great luck with blue. While greenscreen is usually easier to light, I like the quality of the mattes I get out of a bluescreen."

Greenscreen was used for live-action shots of the carrier interiors, replicating the point of view from the bridge peering out at the reaches of space. "Before shooting began, we choreographed each [sequence using digital] previsualization," Anderson states. "After Paul and cinematographer Jost Vacano shot the live-action plates, we went through and started engineering the whole sequence of events around what the live foreground action dictated. The POV was constantly changing, like in a car chase, where you go from behind the wheel to over the bumper to the front of the car as it comes at you. For example, we'd have an interior shot of our heroes on the bridge, and their ship diving toward another starship. Then we'd cut to an exterior and watch the ship you were just on coming toward camera and flying past."

Verhoeven had mandated that the outer-space action should seem like "a car chase with supertankers," so according to Anderson, "our shots were designed to be very close to the action with this epic backdrop around us. It's like a car chase on the freeway — cars may blow up and tumble in your path, and the heroes have to avoid those dangerous situations."

An example of this metal-churning mayhem occurs during the culmination of the *Marshall-Yamamoto* collision. The troopers have received mistaken reconnaissance information, and the fleet subsequently falls under heavy attack as the *Rodger Young*, the *Marshall* and the *Yamamoto* close in on Klendathu. "As the *Rodger Young* flies down through this plasma field, flanked by the *Marshall* and *Yamamoto*, the *Marshall* has one pair of its engines blown off and tumbles out of control, crashing into the *Yamamoto*," Anderson reports. "The whole sequence essentially sets up this moment, and you see the concern of the *Rodger Young*'s crew grow as they watch the *Marshall* and *Yamamoto* collide right before their eyes. We worked for a very visceral, very physical collision. You're going to actually see crunching and bending metal and fire leaking through the severed and torn pieces of the ship. We shot the ships with motion control, but the actual physical collision was done digitally, so we built digital replacement sections for the ships. We combined various passes on the physical models — clean passes, damage passes, pyro passes, interactive lighting passes — then replicated all of that lighting digitally and did the physical crunch in the computer."

Unlike movie stunt cars, which tend to careen and collapse *before* exploding, cinematic spaceships often erupt into fireballs immediately on impact. "We're trying to avoid the 'magic doughnut of fire' that spaceships usually punch into when they collide," Anderson insists. "The *Marshall-Yamamoto* collision happens over a couple of shots, so you actually get to see it. Although this sequence of shots is fairly high contrast and there are some dark areas on the camera side of the ship, we're actually using the pyro to illuminate the action by giving us flashes of detail. There's essentially rimlight from all of the detailed explosions."

As the collision ensues, the *Rodger Young* ducks under her exploding sister ships and executes its getaway. But during the engagement over Planet P, the *Rodger Young* finally meets its Waterloo. "As the fleet comes under attack, the *Rodger Young* banks out of the way of this other starship that's just been hit, and begins to break for clear ground," Anderson relates. "As the bugs start firing, various ships are in all sorts of danger, and the *Rodger Young* navigates through what looks like a major car crash on [L.A.'s] 405 Freeway. Just

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as they're about to get clear of this destruction, they get hit by bug plasma [created with a combination of Dynamation, the Wavefront particle system program, and Birps.] It's a classic naval disaster — the *Rodger Young* is partially ripped apart in the middle, and begins to crack and separate; it has a slow, painful death, fighting bit by bit for survival as the crew tries to escape."

Much of the ship's climactic crack-up was actually photographed in-camera via a unique form of stop-motion animation in which the motion-control camera traveled over the miniature, shooting multiple passes one frame at a time. "It was like Go-Motion, where the details are done on a frame-by-frame basis but the overall big moves are done in a motion-control system," Anderson says. "We used our 18' model for the separation pass, and actually built detailed sections of the interior decks of the ship. Then Pete Clynel and Paul Jessel stop-motion-animated the decks collapsing, which were timed to the lights Pete Kozachik set up and designed on stage. We'd have a light go off as Pete shot the explosion pass. The ship doesn't just sit there burning gently; the decks actually pop, move and blow out. As the ship separates and continues to be eaten away by the residue of the bug plasma that nailed it, we dressed all sorts of live-action, large-scale pyro elements — from 4" to 100' tall — into various sections of that model, as well as our 9' version. In the end, the *Rodger Young* actually breaks apart and begins burning in space. For the final explosion, we blew up three sets of pyro models."

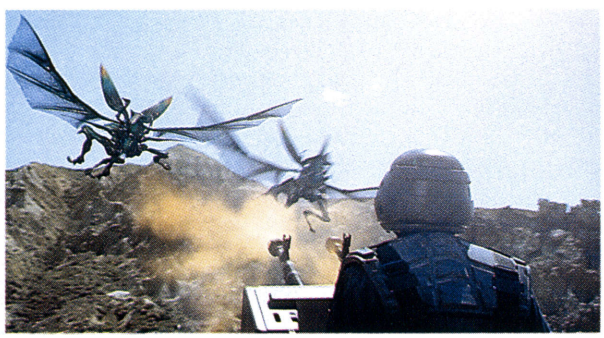
Using stop-motion animation during the course of a motion-control shot involving spaceship miniatures was a painstaking technique, but the method lent the operatic grandeur which Verhoeven and Anderson desired for the *Rodger Young*'s demise. "It was a crazy idea that lived on to the very end," Anderson admits. "We're hoping it adds a new level of depth to our hero ship's untimely death." ◆

Pest Control

Tippett Studio adds a sense of performance to *Troopers'* swarms of killer insects.

by Ron Magid

After ace stop-motion animator Phil Tippett netted an Ocscar for his landmark digital effects on *Jurassic Park*, he feared that his days of conceiving fantastic creatures might be numbered. But Tippett Studio, owned and operated by Tippett; his wife; visual effects producer Jules Roman; and designer Craig Hayes, is still holding fort against the industry's digital tsunami. Having recently completed effects for the family film *Three Wishes*, the studio used its deft sleight-of-hand to supply armies of marauding insects for Paul Verhoeven's *Starship Troopers*.



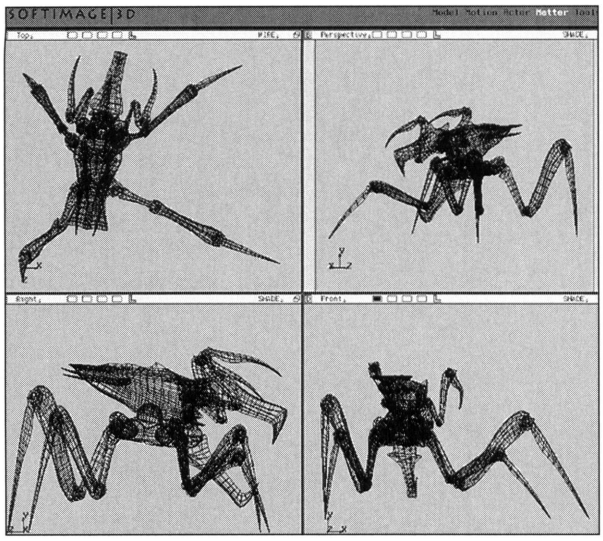
Insects on the offensive (clockwise from top left): A Tanker burrows under the troopers' defensive perimeter; a Warrior scales the wall; a Tanker blasts an evacuating ship as Warriors scuttle about; and a pair of Hoppers come under fire.

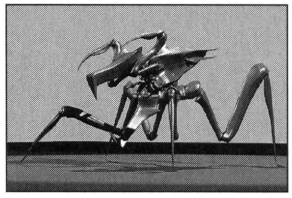
Photos courtesy of Columbia/TriStar Pictures.

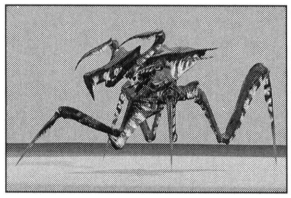
While Tippett designed aliens for the *Star Wars* trilogy and dragons for *Dragonslayer*, *Willow* and *Dragonheart*, he has rarely been asked to give birth to bugs. Until now, his most notable feats in this realm were the giant scorpion in *Honey, I Shrunk the Kids* and the quasi-insectlike monster from the much-maligned *Howard the Duck*. But the effects veteran has never before animated creatures on the vast scale that *Troopers* required. "There are seven different kinds of bugs, and you basically meet a new bug or two in each of the four key battle sequences," Tippet reveals. "Craig Hayes, who co-supervised the bug visual effects with me, also designed all of the bugs. He's a brilliant graphic designer. We put a great deal of effort into making palpably real fighting bug armies that appeared to have some kind of offensive strategy."

Since Verhoeven stressed that *Troopers* was first and foremost a war film, Hayes' designs transformed the insects and their armaments into the equivalent of the faceless World War II Axis troops and exaggerated weaponry seen in old Hollywood propaganda films. "The Warriors are the ground-based troops, the Plasma bugs are the heavy artillery, the Hoppers are the air force, and the Tankers are like flame-throwing tanks," Tippett explains. "Craig tried to create some logical consistency within the bug community. For example, the Hoppers are genetically mutated Warrior bugs: they just have legs in different places and differently elongated limbs. In the same way, the Plasma bugs are genetically altered Tankers — they're a lot bigger and look significantly different, but there are a lot of similar design attributes. We wanted to achieve a balance with these alien adversaries. We didn't want you to take it all in or understand what they were the first time you saw them. Instead, we wanted their appearance to manifest itself over the course of 50 shots."

Hayes, whose first assignment for Tippett Studio was designing the petulant ED-209 police robot for Verhoeven's *RoboCop*, found it relatively easy to design killer bugs that met with the Dutch director's approval. "Because of our established relationship with Paul, we worked out some of the overall issues in the first round," Hayes recalls. "We started by breaking the insects down into a bug hierarchy, then into individual groups. We did different drawings of bugs with weird stuff here and there, then fleshed out designs for







Photos courtesy of Tippett Studio.

After 3-D maquettes of the bugs were digitized and their coordinates input into Silicon Graphics computers, the models were refined in Softimage and then set up with kinematic chains for the animators. While most of the animation and rendering was done on SGI platforms, much of the painting and compositing was executed on Macintosh machines. **Top right:** ***two animators at Tippett Studio check the progress of a scene against a scale bug model.***

each particular style. But there was a concerted effort to make them pretty familiar. *Troopers* is not about this fantastic lifeform: the bugs had to be real and grounded so you wouldn't have any trouble telling the good guys from the bad guys."

Hayes envisioned that the Plasma bugs would produce explosive goo through an internal catalytic reaction that would then blast tracerlike fire from their backsides. "The Plasma bugs are bulbous and greenish-blue colored with yellow stripes on their thoraxes," Hayes says. "They're 85' tall and based on a cross between stinkbugs and fireflies. Since their butts are transparent, you can see some kind of reaction happening inside. There are only three shots of the Plasma bugs, which are seen in the Klendathu battle sequence: they move into position, take aim like pieces of artillery, and then fire."

The Tanker bugs, however, are a great deal more mobile. "They're more like half-track tanks," Hayes explains. "They have multiple legs — a big set up front, and then a row of six small ones. They're mobile plasma sprayers, like flame-throwers, who shoot plasma like napalm from a nozzle between their eyes; the plasma is ignited by little spark generators dangling in front."

Hayes designed the flying Hopper bugs to appear aerodynamic: "The Hoppers have translucent wings that fold up and fit inside their carapace. They're greenish-blue, with a metallic reflective surface that gives them a futuristic, aerospace feel."

The most ubiquitous of the deadly insects are the preying mantis-like Warrior bugs, which swarm in thousand-unit hordes, gleefully munching on troopers with their massive jaws. "The Warriors were modeled on those big rhinoceros or elephant beetles, which have huge chopping jaws," Hayes explains. "We gave them two attack claws up front to help them draw people into their jaws. To make them look really mean, we gave them graphic splash patterns reminiscent of other predatory animals or insects. The Warriors have yellow-orange stripes like wasps and tigers, and a red strip on top of their heads and jaws so you'll hopefully understand which end's up. We also avoided big round soft shapes; everything is pointed. If one stepped on your toe by accident, it would hurt."

"Their feet even terminate in little ice picks!" Tippett adds. "Ironically, the Warriors were also called the Arachnids, but they bear little resemblance to anything that looks like an arachnid, which by definition has eight legs. Craig made sure they only had four, because we had so many Warriors to deal with; keeping the number of their legs down would give us a bit of an advantage. Making them walk was the hard part. [For the battle sequences on the planet's surface], we were dealing with a heavily textured landscape, so the footfall patterns, the shifting of weight and all of the physical attributes had to constantly be worked on and adjusted. With every step, they had to either go up, around or over a rock."

Nevertheless, the Warriors are impressively fast-moving critters who manage to convey a genuine sense of mass. "There's a balance one is compelled to find," Tippett states. "We wanted a quick, lethal quality, while at the same time making it feel as if each Warrior bug weighed between 1,500 to 1,800 pounds."

Once Hayes designed the alien bugs on paper, Tippett Studio's modelers built scale maquettes of each beast, which were then digitized using a homegrown 3-D scanner. After the bugs' coordinates were input into Silicon Graphics computers, the models were refined in Softimage and then set up with kinematic chains for the animators. They also created high-res models to be used in the final rendering of the images in Renderman. While most of the animation and rendering was done on SGI platforms, much of the painting and compositing was executed on Macintosh machines.

While most of the space insects, including the Tanker, Plasma and Hopper bugs, were computer-animated using keyboards and mouseclicks, about 30 percent of the Warriors were animated using the Direct Input Device (DID) that Craig Hayes originally developed for *Jurassic Park*

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(see *AC* Dec. 1993). The DID enabled Tippett's stop-motion animators to translate their artistry into the computer realm by moving a conventional ball-and-socket animation armature, essentially a machined metal dinosaur skeleton, a frame at a time. But instead of photographing the puppet (as in the conventional stop-motion animation of say, *King Kong*) sensors on the armature's joints fed information directly into a computer, where the movements of a wireframe dinosaur on a monitor exactly duplicated those of the real-world DID armature. Earlier this year, Hayes received a technical Academy Award for the creation of the DID.

For *Troopers*, Hayes modified and refined the DID system to make it more user-friendly, and created new armatures to represent the four-legged Warriors. "We mostly made mechanical improvements," Hayes says. "We did everything we didn't have time to do on *Jurassic Park*. We built extra armatures, so if anybody's puppet broke, we could swap in a new one and repair the old one. We changed the positions of the encoding devices and sensors, and we streamlined the system and improved the speed of its response quite a bit; everything's much faster. There's only a quarter-second delay from the time the animator moves the DID armature to the point when you can see the result on a monitor. There were three animators using the DID, and they could do pretty tight performances. We put a lot of effort into getting most of the bug parts on the DID armature, though some secondary animation had to be done to add the various smaller attack claws. It usually took a couple of days to animate a shot."

To create the Warriors, the DID animators used the system primarily to animate the bugs' keyframe positions. For example, an animator would pose each leg in its beginning, middle and end position, and the computer would fill the gaps in between. Hayes also devised a variation of the system for real-time puppeteering. This technique, more closely related to motion capture than puppet animation, enabled Tippett Studio to quickly generate shots of the bugs leaping or snapping their jaws — recalling the digital rod-puppet method Boss Film used to create its CG alien creature in *Species*. "The animators manipulated the DID puppet in real time," Tippett says. "Depending on the complexity of the shot, sometimes two or three people would puppeteer them."

Since their work was instantly reviewable and each performance could be saved, the DID animation could be continuously refined as long as time and money permitted. Tippett's animators could critique quick-shaded versions of their shots, then go back and redo parts of the performance.

In shots with multiple creatures, the animators still used a single DID armature to build up layers of animation. "We'd do one performance and use that as reference," Hayes states. "Then our DID software allowed us to play back the prerecorded performance

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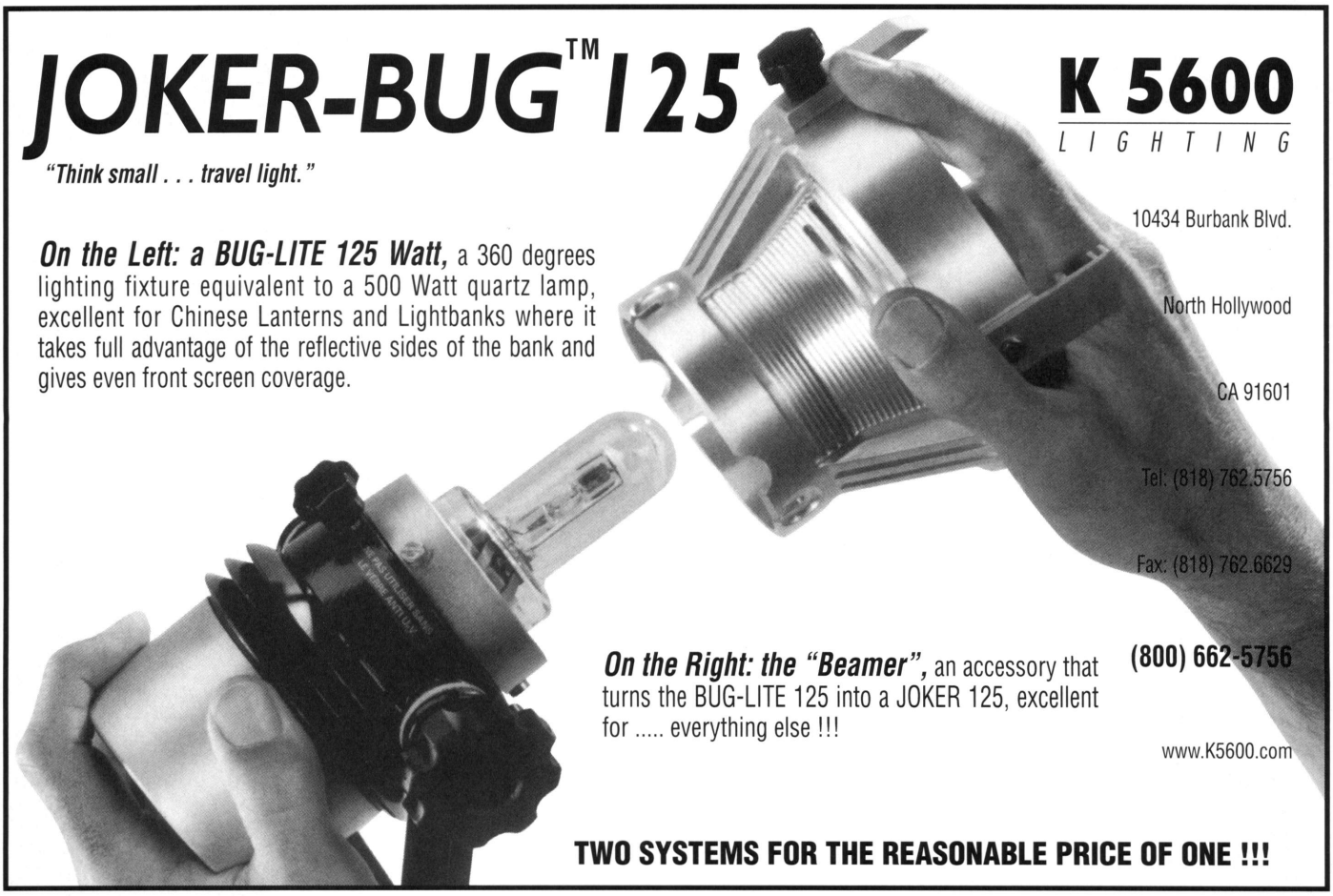

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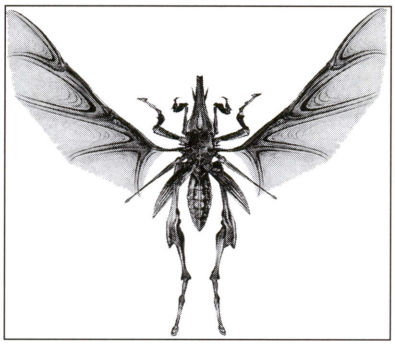
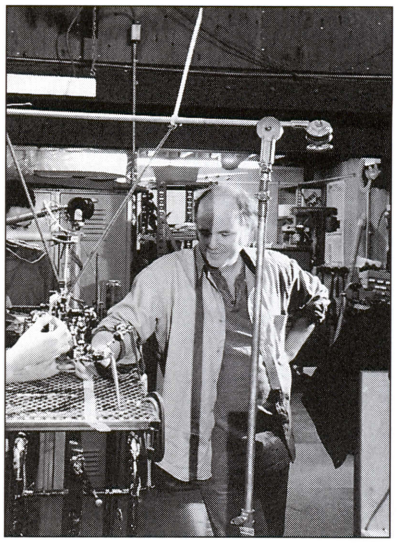
while the animator animated the new one."

For the larger "crowd scenes," which featured no less than 30 and upwards of 1,200 Warriors, Tippett's crew used procedural animation to generate the swarming hordes. "We created bug walk cycles which we could run over the terrain and rocks," Tippett explains. "We graphically tried to make them appear to be doing the different kinds of things that warrior ants do, so we offset the cycles and determined interesting flows and paths so they almost look like a river of living stuff."

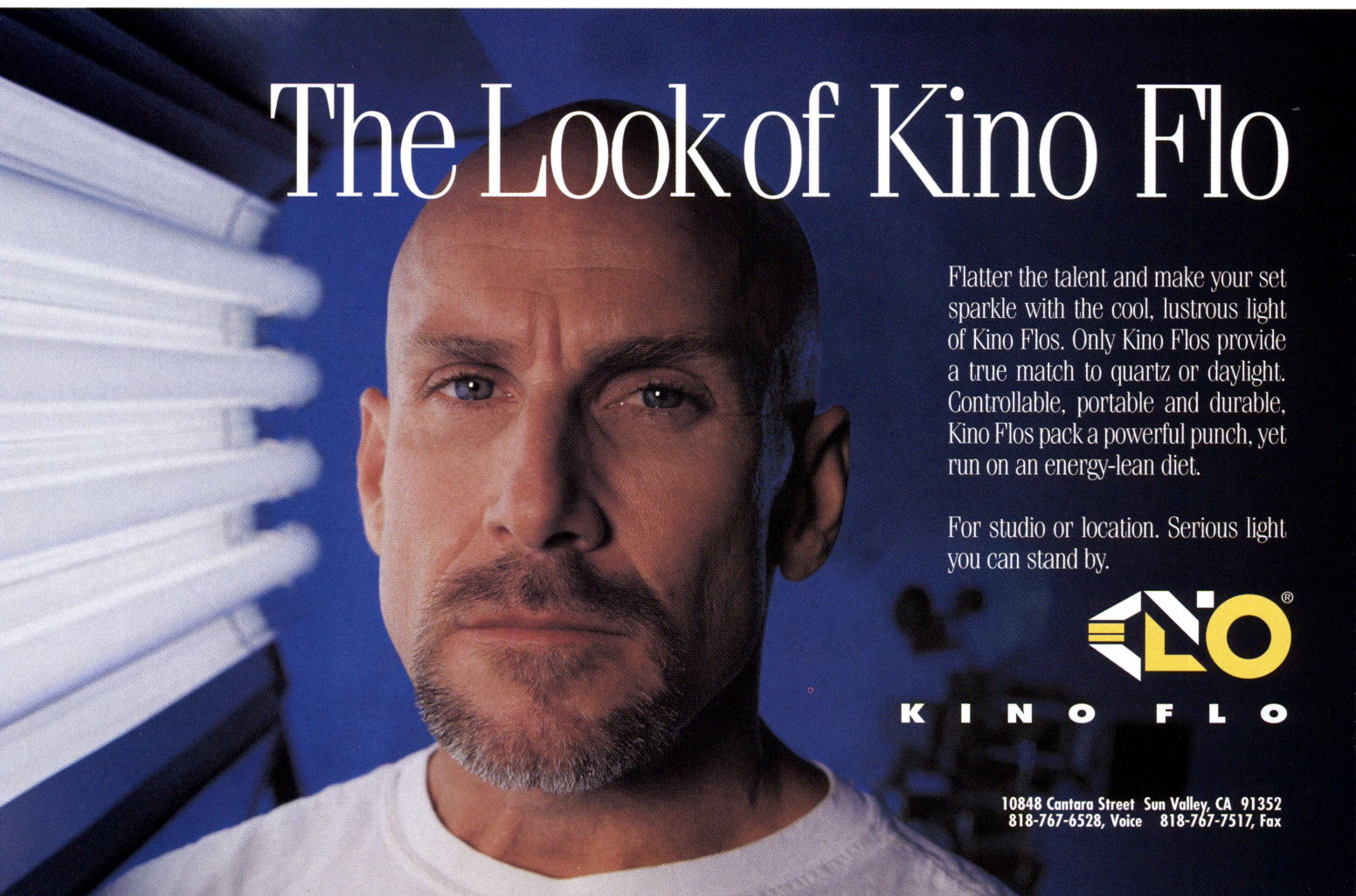
Foremost among *Troopers'* most ambitious and difficult images is a shot that begins inside the doomed Fourth Brigade Compound on Planet P, where the troopers' rescue effort ends in despair when they find their comrades massacred. Suddenly, a sergeant screams "Bugs!" and the camera travels with the troopers as they race to take their battle stations along the compound walls. The camera then booms up and over the wall and peers down to reveal over 1,000 bugs attacking. "That was the very first shot we did, and the most horrific," Tippett sighs. "The wind was blowing hard on location, and the boom arm was really long, so when it reached the end of its move, it was bouncing. We have a very good match-move department, but that procedure alone took weeks. Then we had to generate close to 1,000 bugs, mostly Warriors and some Tankers. A normal action shot would last maybe five seconds, but this shot needed to run a bit longer so you could figure out what the hell you were looking at. It probably ran 10 seconds because of the level of abstraction, and it took months to put together."





Left: ***Tippett supervises real-time animation work utilizing the Direct Input Device, which was created for use on*** **Jurassic Park.** ***While the Tanker, Plasma and Hopper bugs were computer-animated using mouseclicks and keyboards, about 30 percent of the Warriors were animated using the DID.***
Far left: ***A full-res scheme for a Hopper bug.***

Forget the angst of animating that many bugs, even using procedural techniques: once the animation was finished, this highly detailed shot then had to be rendered. "I think we had some really



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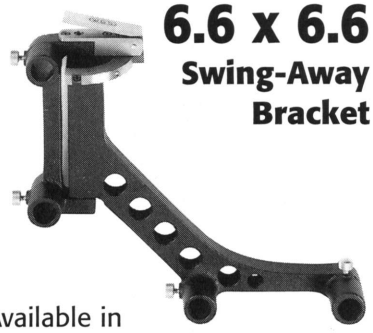

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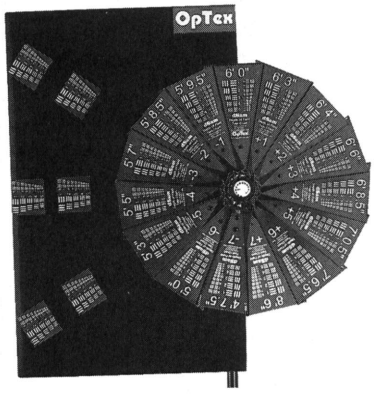

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bad days where it took something like 60 hours to render a frame," Tippett admits. That means that this 10-second shot — which, at 24fps, ran 240 frames — took several months to render. "Once we started getting into it, the management of our resources became extremely critical. We had to put a great deal of effort into finding time-, labor- and render-efficient ways of generating the bugs that ultimately got those horrible 60-hour-per-frame renders down to reasonable 25- to 30-hour renders."

To worsen matters, the Planet P compound sequence occurs in broad daylight, which caused further complications in making the bugs look totally photorealistic. "It's a difficult trick to get the lighting to look right," Tippett agrees. "That's where most computer graphics stuff falls apart. Julie Newdoll, our technical director, was in charge of all the computer graphics lighting. Computer graphics creatures often get overlit in daylight situations, which makes them look a bit flat. There was a great deal of controversy as to how we should go about lighting these things in an efficient manner, and it took a while to get the hang of it. I've really got to hand it to Craig and his art department. They built these things and maintained the integrity of form and surface and color. They were very careful to give the surface qualities of the bugs lots of texture, highlight and sheen. They also made them bright enough to have nice shadows but good detail, which allowed them to feel believable in daylight. They certainly went through a design metamorphosis, but by the time we started putting out finals, I was quite shocked; I couldn't have been more pleased."

Tippett credits Amalgamated Dynamics, Inc. (ADI) for fashioning the full-scale mechanical bugs that thrashed the troopers in close-ups, as well as the dozens of dead bugs that peppered the alien landscapes. Additionally, his animators received tremendous support from editor Mark Goldblatt and his team. "It's difficult for an editor to put effects sequences together, because there's nothing in them!" Tippett explains. "There are close to 200 shots in which there was literally nothing going on before we got to them. It's an organizational nightmare fitting all of this together and trying to imagine how long each shot should last."

While the battle sequences were roughly accurate to the director's original storyboards, events conspired to prevent the *Troopers* crew from moving from various locations to the set. Thus, the final sequence, in which our heroes confront the dreaded Brain Bug, required a great deal of improvisation. "The Brain Bug is a pulpy, horrible creature that Paul always thought of as a God-king, Cthulhu-type thing," Tippett laughs, referring to H.P. Lovecraft's demon god. "He does the nasty job of sucking people's brains out, so there are some human sacrifices happening."

"Paul wanted it to look like a queen termite," adds designer Hayes. "He's into biology, so the Brain Bug looks a bit like a pus sack with flesh-colored, undulating sides that resemble a big intestine. Then there are the Chariot Bugs, the Brain Bug's entourage, which are 4' long cockroach-like things that band together to form a moving carpet which supports him. They're like comic relief."

There was nothing amusing about animating the nasty bug leader, however. "He's a very complicated character," Tippett states. "While all of the other bugs had conventional exoskeletons, the pulpy nature of the Brain Bug necessitated a very complicated flow of shapes. We had some pretty close shots, which took a great deal of time."

Despite co-helming nearly 250 shots for *Troopers* over the past three years, Tippett has yet to conquer his fear of insects: "It's interesting how the world is divided between people who are either terrified by insects or terrified by reptiles. I never was subject to the fear of reptiles, but insects always gave me the creeps. Making this film was no catharsis." ◆

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Eclectic Images

A presentation of diverse international films keeps the Montreal World Film Festival fresh and vital in its 21st year.

by David E. Williams

Above: *In* Junk Mail, *Roy (Robert Skjærstad), an impertinent letter carrier, is nearly discovered by Line (Andrine Sæther) while hiding in her apartment.* Right: *Rob abandons his duties in an Oslo trainyard. Extreme contrasts in color temperature run throughout the film.*

Welcomed again by packed theaters of avid filmgoers, this year's Montreal World Film Festival, held from August 22 to September 2, provided an array of diverse cinema from every corner of the globe.

Opening the festivities was the French period comedy *Un Air Si Pur*, directed by former cinematographer Yves Angelo (who photographed such films as *Camille Claudel, Tous les Matins du Monde* and *Germinal*) and shot by Edward Klosinski and Denis Lenoir, AFC.

Among those films playing to the often-capacity crowds were Neil LaBute's brutally funny comedy *In the Company of Men*, starkly captured by director of photography Tony Hettinger; Miguel Arteta's *Star Maps*, beautifully shot by Chuy Chavez (see ASC Web Site, August posting); the charming *Lawn Dogs*, directed by John Duigan and shot by Elliot Davis; director Guy Madden's uniquely bizarre and euphoric *Twilight of the Ice Nymphs*, photographed by Mike Marshall; and Nick Cassavetes' *She's So Lovely*, featuring the widescreen compositions of Thierry Arbogast, AFC.

The Festival also boasted unique programs focusing on Iranian and Latin America cinema, as well as nightly open-air screenings held at the Palace des Arts. The films presented there included *The English Patient, Indochine, The Piano*, and *Romeo + Juliet*.

The Festival jury, presided over by actress Jacqueline Bisset, (famous for such films as *Cul-De-Sac, Bullitt, Day for Night* and *The Deep*) honored the following films:

Grand Prix of the Americas (Best Film): *The Children of Heaven*
Special Grand Prix of the Jury: *Homer — Portrait of the Artist as an Old Man*
Best Director: Carlos Saura (*Pajarico*); Juni Ichikawa (*Tokyo Lullaby*)
Best Actress: Frances O'Connor (*Kiss or Kill*)
Best Actor: Sam Rockwell (*Lawn Dogs*)
Best Screenplay: Fabio Capri (*Homer — Portrait of the Artist as an Old Man*)
Best Artistic Contribution: Jan Duris (cinematography, *An Ambiguous Report About the End of the World*); Wayne Pashley (sound, *Kiss or Kill*)
People's Award: *The Children of Heaven*

Photos courtesy of CFP Distribution.

Following are overviews of this reporter's personal favorites:

Junk Mail (Norway)
Director: Pål Sletaune
Cinematographer: Kjell Vassdel

Shot in and around the lower-rent neighborhoods of Oslo, *Junk Mail* is a dark romantic comedy in the vein of *After Hours*. Roy (Robert Skjærstad), an impertinent mailman, seeks to enliven his dreary job by reading stolen love letters and generally ignoring his postal duties. One day, he finds a set of keys belonging to Line (Andrine Sæther), a hearing-impaired beauty who lives on his route, and decides that her apartment would make a great afternoon crash pad. Roy soon finds

himself in love with his unsuspecting host, and discovers that she is in serious trouble — a situation he surreptitiously tries to defuse while awkwardly courting her.

Cinematographer Kjell Vassdel began his career upon purchasing his first Super 8 camera at the age of 15. At the time, no real film school existed in Norway, so he studied at a media center which offered film and television classes. There, he made contacts with fellow students and some of his instructors, later finding professional work as a focus-puller while shooting many short films on his own. Vassdel shot his first feature in 1985, and has since amassed 15 other theatrical credits while filming commercials and shorts. "I'm lucky enough to work all the time," he confesses.

Director Pål Sletaune's own career in filmmaking emerged from studies in art history, art literature and still photography. He then made documentaries and short films for five years before moving into commercial work. "Commercials have only been on television in Norway for the past five years," he says. "Because the medium was new, there was a good creative atmosphere about it, and a lot of good people were attracted to the field — mixing it with feature film work and using the same crews to do both.

"I've done several commercials with Kjell, and I like working with him because of the way he deals with actors. There were a lot of first-timers on *Junk Mail* — including myself — so I wanted to work with an experienced cinematographer. Also, Kjell isn't interested in just highlighting his part of the work. Instead, he's involved in telling the story, which was a great help to me."

Vassdel explains, "As a cameraman, my most important role on the production is to find and maintain the style of the film, but I also have to help the actors with their performances. I can completely destroy an actor's performance by using the wrong angle, so figuring out how to best capture each scene in very important to me. I have to identify with the performers and their characters, and then support that with the camera.

"I don't directly involve myself with the actors, but I work with them by observing and reacting to their actions like one might while shooting a documentary. I like this approach to feature work, because 'catching the moment' is something the actors are trying to do as well. You can't depend on them to simply repeat their movements in each take, because there will be differences in their performance as they try to get it right. You have to give them space and options in terms of both the camera and lighting.

"On *Junk Mail*, part of this process was keeping the technical side of the filmmaking away from the actors, which every cameraman should try to do. It's easy to let the technical side take over, especially when the actors are inexperienced. Fortunately, Pål is very good about protecting the actors from this situation, while also being very demanding about the visual style of the film. Many directors are interested in only one aspect of the film — just the actors or just the camera — and don't understand that filmmaking is a combination of these things."

During their prep work on *Junk Mail*, Sletaune and Vassdel watched Jane Campion's *Sweetie*, several pictures by Finnish director Aki Kaurismaki, Roman Polanski's *Cul-De-Sac*, the Coen brothers' *Barton Fink* and Martin Scorsese's *Taxi Driver*. The cinematographer recalls, "Pål wanted to create a sense of minimalism with a bit of style. But watching old films was just a starting place for our conversation; we then went in our own direction while discussing the script."

Sletaune continues, "We took the script apart, asking where the essence of each scene could be found, and tried to build visual metaphors to represent what was happening in the story at that point. This could be done with framing, the lighting or however else — but in a way that supported the story. We did complete shot lists for the entire film, and storyboarded a few sequences."

This process helped the filmmakers continue to define their visual approach, particularly in terms of lighting. "I'm interested in texture," Sletaune attests, "and for many years most Scandinavian films have had a tendency to look so *clean*. I wanted a grittier feeling, a lot of patterns on the walls, and to do things like use fluorescent lights from above to bring out the surfaces of things."

In their commercial work together, Sletaune and Vassdel had indulged the director's penchant for mixed color temperatures. The cameraman says, "Our commercials were almost like experiments for our work on *Junk Mail*, which is heavy with greens, blues and very warm light. I think mixing colors is a more natural approach to lighting, particularly in terms of interiors and night exteriors; audiences identify with the approach quite well. It's not a 'realistic' look, but this effect happens so often in real life that it is acceptable now.

"On all the daylight interiors, I used HMIs — through the windows and inside as well — as well as practical lights with regular household bulbs, which are very warm. That mix adds a lot of depth to the shot.

"We used a lot of fluorescent lights. In preproduction we tested three different kinds of tubes — tungsten, daylight and something in the middle — which had interesting effects when we put them in tungsten or daylight situations. We mostly used the middle fixtures, which were about 4000°K — often just placing them in the corner of a room to add a little mix in the shot.

"We used Eastman's 5245, 48 and 96, and I didn't use any correction filters at all, which really brought out the blues and greens of our sources. I also tried to make all of the lighting work on the set, as opposed to creating effects later in the lab. I don't think it's very hard to get a film to look the way you want it to look, but you do have to create everything in front of the camera."

Vassdel shot *Junk Mail* with Moviecams, which he feels are very practical. "We use them all the time, because you can break them down for handheld use or build them up with 1,000' maga-

zines and big zooms for shooting in the studio," he notes. His lenses included an Angenieux 17-102mm zoom, standard Zeiss primes, and a few Superspeeds for night work.

Junk Mail has been both a critical and financial success in Norway, and is being distributed in the U.S. by Cinepix.

Kiss or Kill (Australia)
Director: Bill Bennett
Cinematographer: Malcolm McCulloch

Primarily photographed on real locations on Australia's parched and empty Nullarbor Plain, *Kiss or Kill* is a stripped-down pursuit picture boasting impressive acting and visuals. Nikki (Frances O'Connor from *Love and Other Catastrophes*) and Al (Matt Day) are an amorous yet criminal couple pulling off bush-league cons. After one of their marks dies, however, they flee with his briefcase — later discovering that it contains evidence linking a major sports figure to a pedophilia ring. Trying to avoid both the athlete and the cops, the pair race across the country. As the pressure builds, dead bodies begin appearing in their wake, while Al worries that Nikki has gone over the edge.

Cinematographer Malcolm McCulloch primarily works as a still photographer and commercial cameraman; *Kiss of Kill* is the first feature film he's shot in 10 years. He and Bennett had collaborated often over the last five years, and McCullough says that "shooting a feature again was a lot of fun. Bill had often threatened me with shooting a picture for him, and this one came along at the right time.

"The style of *Kiss or Kill* is totally different from what we have done in our commercial work. The commercial scene in Australia is very image-oriented and stylized — overproduced in a way. I think it's really easy to light something to look pretty by using a Xenon to send a shaft of light through the frame, adding some smoke, and bringing in a bit of fill. Bill and I have done so much of that kind of work that this film was a conscious choice to move away from that style of photography. It was actually quite scary, because as a cameraman you want to make beautiful images. But there are other ways of looking at images and deciding whether they are beautiful or not."

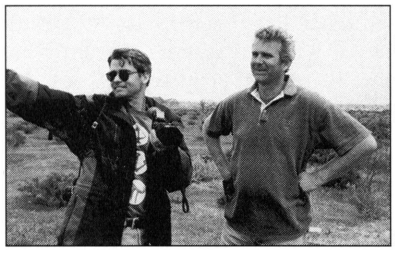

Photo courtesy of October Films.

Kiss or Kill: ***Director Bill Bennett (left) and cameraman Malcolm McCulloch plot a shot in the Australian outback.***

Writer/director Bill Bennett's career also began with still photography; he later moved into television, commercial work, and feature films. His theatrical credits include *A Street to Die, Backlash,* and the road movie *Spider & Rose,* which earned him attention in Hollywood. After his romantic comedy *Two If by Sea* received a critical drubbing, he returned to Australia to pursue other avenues. "As a director, story is the most important thing to me, and the pictures are secondary," Bennett submits. "Unlike a lot of commercial cameramen, Malcolm is able to give a shot a unique, stylized look without making it look unreal, which supports storytelling. So we're a good combination.

"I like to move fast, which keeps the energy up. On my previous films, however, the actors were always subservient to the camera. Everything was storyboarded and worked out, which left us with a very planned and disciplined style. On *Kiss or Kill,* I wanted to go totally in the other direction, with all of the technical aspects of filmmaking subservient to the performers."

This desire led Bennett to give his performers a wide degree of creative latitude. "Instead of a full script, we started shooting with a 60-page scene-by-scene breakdown with almost no dialogue," he says. "In rehearsal, I'd give the actors an enormous amount of freedom in terms of improvisation, and then we would orchestrate the filmmaking aspects based on the blocking we finally came up with."

The improvisational nature of *Kiss or Kill* was the most consistently problematic aspect of the shoot for McCulloch. As he explains, "I'd have to light every location for 240 degrees, because we literally didn't lock the actors down anywhere. It was very interesting to see how things would progress between each take and each scene, but our approach was tough on the focus puller. Fortunately, our lead actors were very much in sync. In terms of operating, you learn to read the actors' body language, and theirs was very similar; it wasn't a problem to shift from one to the other.

"Almost the entire film was done handheld, with the exception of the landscape shots — car drivebys and that sort of thing. Budget-wise, the camera operator was me. Because we were a long way from any kind of technical support, we needed a really robust camera, so we went with Arriflex. We only had two bodies — a 35BL-3 and a 35-3 — so if something had broken down we would have been in trouble."

McCulloch relied upon Zeiss standard lenses: "The longest we had was a 135mm, and I think we only did one shot with that. "Everything else was done at the wide end, mostly with 20mm, 24mm and 28mm primes."

Another factor that affected McCulloch's photographic approach was a jumpcut editing style that Bennett felt would further support the narrative. The director explains, "The story and these characters have this very jagged, fractured, and dislocated feeling, and the film had to reflect that. Prior to production, I experimented with various cutting styles on some commercials I was doing, and finished one right before the shoot that represented exactly what I wanted for *Kiss or Kill.* I was then able to show that to Malcolm and my editor, Henry Dangar.

"The cutting style dictated the camerawork, because if you shoot a film conventionally, you can't use jumpcuts and still retain a sense of continuity in the action. It will just look like a mistake. In traditional cutting, sequential shots

Thank you

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require a great variation in angle or framing from one to another, which allows a cut to be acceptable to the audience. I didn't want our cutting to work that way, but there had to be a consistency to it. This was a feature film, not a 30-second commercial, so the effect couldn't confuse people.

"For our coverage, we'd first figure out what single angle best covered the scene, and then shoot a master from that position. We'd then do further coverage from five or 10 degrees off the axis of that angle, or choreograph the action so that it was one beat faster or slower, sometimes changing our focal length by just two or three millimeters. These differences were just enough to create slight variations from shot to shot, which allowed us to create a jumpcut effect while retaining continuity in the action."

Making a film in a fairly well-established genre led Bennett and McCulloch to seek some inspiration from past films, but "we wanted to get away from road-movie conventions," says the cinematographer. "Early on, we sat down and watched three films for reference — Godard's *Breathless*, *Paris, Texas* and *Leaving Las Vegas*. We primarily discussed things like contrast and lighting, but we were also looking at camera angles. From there, we expanded things to get something we felt best suited us.

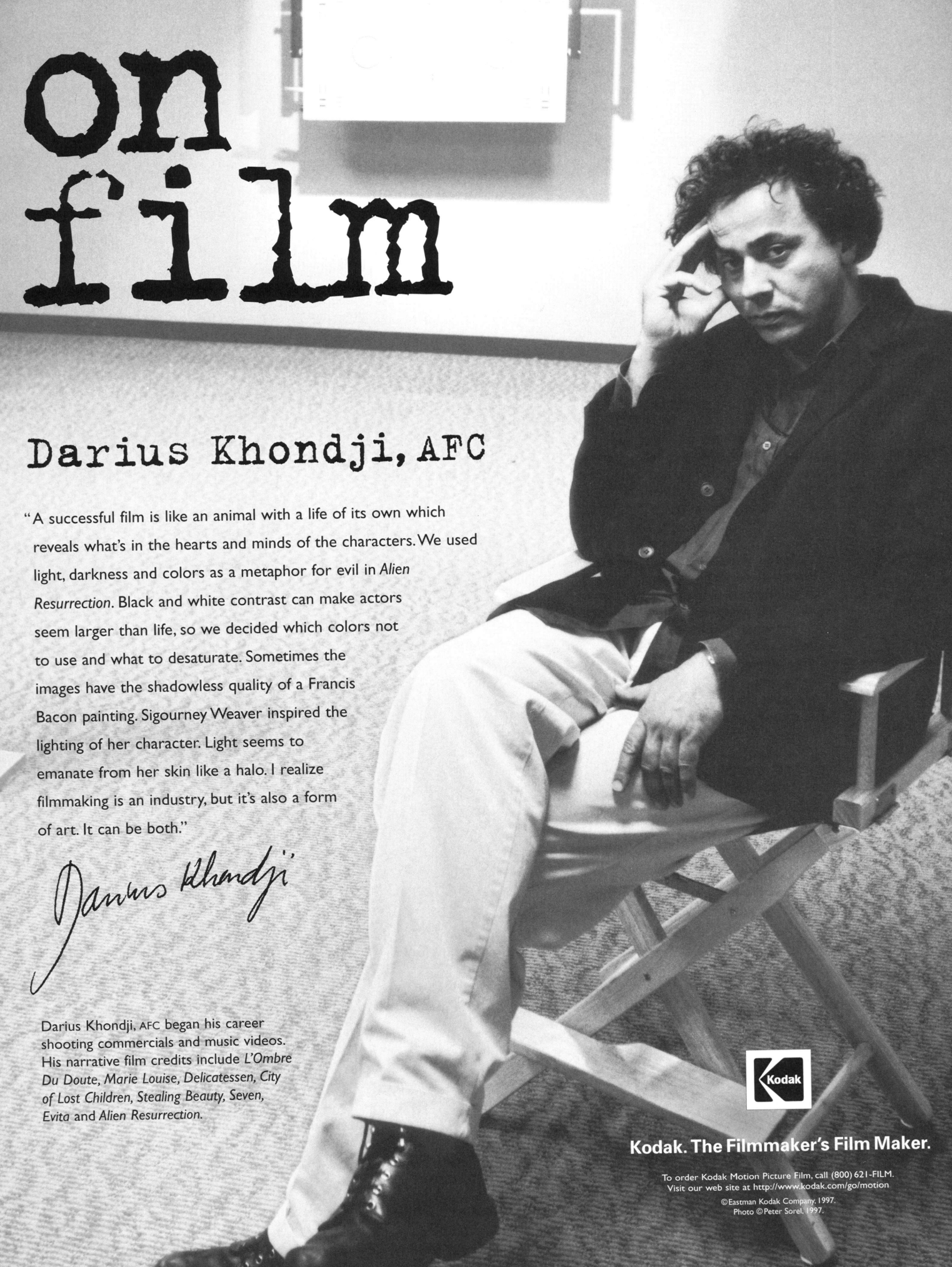
Additionally citing such films as *They Drive by Night* and *Badlands*, Bennett says, "*Paris, Texas* is a quintessential road movie, and what cameraman Robby Müller did so well was bring the outside scenery into the interiors. One place we created this effect was in our many car interiors. We wanted our characters to be part of the landscape, even when they were inside, so we didn't let the windows blow out. That meant finding a balance between the interior and exterior, and we often depended on the latitude of the stock to carry several stops of difference."

Asked to describe the nature of Australian light, McCulloch submits, "It's quite different from light found most anywhere else in the world, except for New Zealand. It's *very* contrasty. The shadows here are seriously black, so we tried to get that across in the film as well. Therefore, while we tried to keep lighting to a minimum, we specifically didn't use fill lighting at all. In fact, more often than not, we'd black out sources within a room to get rid of any naturally occurring fill rather than light anything.

"Bill wanted to keep depth of field down to a minimum, so we used a lot of NDs even while shooting with 5248. We used the Vision 500T for our nighttime and interiors. Still, it's a shame that we didn't have the new Vision 200T available, because I think that stock is just unbelievable.

"I wouldn't call this a 'non-lit' film, but the lighting process mostly consisted of taking away *extraneous* light. We tried to use what was available, add what was needed, and remove anything unnecessary. My lighting ratios were determined by what was there when we got to the location.

"Being a still photographer, I tend to use Polaroids to


on film
Darius Khondji, AFC
"A successful film is like an animal with a life of its own which reveals what's in the hearts and minds of the characters. We used light, darkness and colors as a metaphor for evil in *Alien Resurrection*. Black and white contrast can make actors seem larger than life, so we decided which colors not to use and what to desaturate. Sometimes the images have the shadowless quality of a Francis Bacon painting. Sigourney Weaver inspired the lighting of her character. Light seems to emanate from her skin like a halo. I realize filmmaking is an industry, but it's also a form of art. It can be both."
Darius Khondji
Darius Khondji, AFC began his career shooting commercials and music videos. His narrative film credits include *L'Ombre Du Doute, Marie Louise, Delicatessen, City of Lost Children, Stealing Beauty, Seven, Evita* and *Alien Resurrection.*
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check my exposure — attaching a Polaroid back to a Hasselblad — so the exposures were usually right on. I was using a color Fuji stock for that, and the results are very similar to Eastman color. That process gave us a great reference for our contrast and lighting ratios, usually resulting in Bill telling me to turn another light off in most scenes."

Making this film was very liberating," Bennett concludes. "First off, we weren't constrained by the script. And because we had a tight crew, we could respond to whatever happened. On a Hollywood film with 400 crewpeople, you can't scratch your nose if it hasn't been scheduled."

Kiss or Kill will be released in the U.S. by October Films.

The House of Yes
(United States)
Director: Mark Waters
Cinematographer: Michael Spiller

Based on a play by Wendy MacLeod, *The House of Yes* was one of the most outrageous films to play at the Festival this year.

Hidden away in their Virginia mansion, the upper-class Pascals are far beyond dysfunctional: intimidation, insanity and incest blend to create a grotesquely funny caricature of the post-Nuclear Family. But eldest son Marty (Josh Hamilton) is still *trying* to be normal, prompting him to bring his naive fiancée (Tori Spelling) home on a stormy Thanksgiving evening to meet his brother Anthony (Freddie Prinze Jr.), twin sister Jackie-O (Parker Posey), and demented mother (Geneviève Bujold). Things quickly get out of hand after the power is knocked out by the tempest — culminating in a surreal re-creation of the J.F.K. assassination.

"The director, Mark Waters, was a fan of the films I've made with Hal Hartley," says cameraman Michael Spiller, referring to the pictures *Trust, Simple Men, The Unbelievable Truth, Amateur* (see *AC* August '95) and *Flirt*. "Mark had adapted the screenplay from the play, and asked me if I would like to read it. About five pages in, I knew this was a film I wanted to shoot. The dialogue, the tone and the characters were great, but I thought it would also be a challenge to shoot a film that takes place over a period of 12 hours in one interior location. I immediately accepted the job."

As Waters had been developing the *Yes* script for some time, he had specific visuals and coverage in mind, even before locations had been decided upon. "Once the locations were found, it was just a matter of adapting his boards to them and bringing out their positive aspects," Spiller explains. "As for our general style, we wanted to keep the camera moving and the lighting interesting — since we were spending so much time in one location — but we didn't want to do anything too flashy that didn't support the storytelling. That's not to say that we didn't have fun, though — we used a speed/aperture control for mid-shot speed changes several times, and did some Steadicam and handheld work. But the script called for those effects, and they

don't call attention to themselves as purely visual tricks without any narrative justification."

With the exception of the exteriors, *The House of Yes* was filmed entirely on one location: a large mansion in the exclusive Hancock Park neighborhood of Los Angeles, which became the Pascal estate. "We treated the house much like one would a soundstage," says Spiller. "We tented the entire building so we could shoot day, night or blackout scenes at any time. That worked out really well, although it was pretty warm in there — we were shooting for 22 days during the summer with a lot of light units burning. The situation was alleviated a bit by some big air-conditioning hoses running inside."

Spiller notes that keeping lighting continuity was one of the biggest challenges during production. He explains, "Because of the actors' schedules, we were constantly flip-flopping between the three basic acts of the film, which were a night interior with a thunderstorm, a candlelit night interior during the blackout, and the morning after. Tori Spelling had to leave early in the production, so we had to shoot her out first, and then re-create a lot of lighting setups for the other actors. We would often be in the living room flipping back and forth between the three looks on each setup, which was tricky to keep organized. My gaffer, Bobby Ferrara, kept close records, which helped."

Spiller adds that his crew, including Ferrara, key grip Mark Pickens and assistant Storn "Norp" Peterson, made it possible to finish the film on time and "under budget — within a few dollars."

The picture was entirely lit with tungsten units, which helped Spiller avoid flicker problems while filming off-speed, as well as other headaches. "It was a liberating experience," he attests. "I just really like the quality of big-lens tungsten lights. For our morning/daylight look in the house, we used big-eye 5K and 10K Fresnels bounced into beadboard to create a soft wash coming through the shears on the windows. It was an early-morning glow, something soft in the midst of all this crazy stuff that happens in the story."

The candlelit sequence, during which Jackie-O and Marty reveal their most private secrets to the somewhat-dull Anthony, begins as their mother enters the mansion's main hall carrying a tray holding four large candles. "That first shot of Geneviève Bujold was the only one actually lit primarily by the candles," Spiller reveals. "We looked at using Chinese lanterns on poles and some other methods to supplement the candles, but they just spread the light out too much. We ended up using strategically placed Tweenies with snoots focused up into the ceiling. The fixtures were aimed up high and controlled on dimmers, so we would glow them up and down as she walked by; we also used different ones that came up on the other actors as she drew closer to them. For a few shots, we hid little Mag-Lite bulbs in hollowed-out candles. We used extra-thick candles, and the prop man, Nat Bocking, just dug

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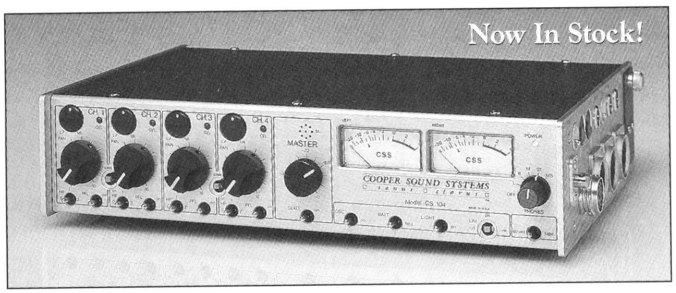

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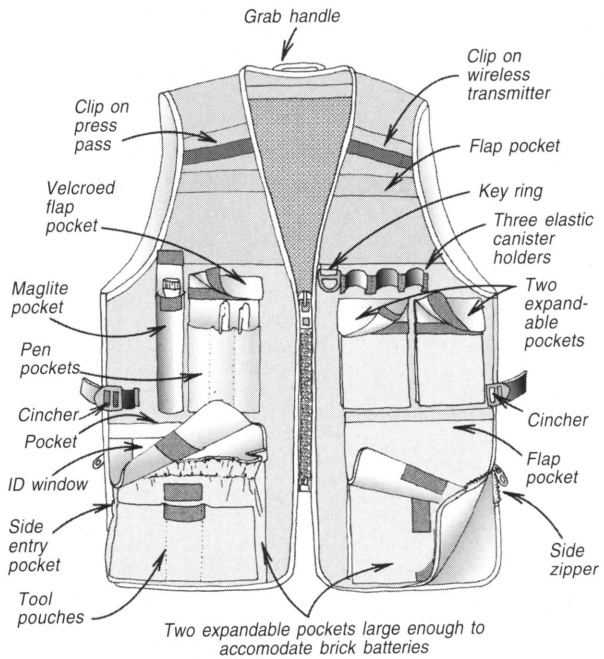

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out a space for the bulbs."

The lightning effects used throughout the nighttime storm were given a character of their own. "Lightning was a very important visual element for this picture," Spiller notes. "We used two 75,000-watt Lighting Strikes fixtures inside our tents, and since we couldn't get the heads far enough away to cover all the windows, we had to place several 4' x 4' mirrors at precise angles to get the effects in every window we wanted. Mark would go through the script and indicate every place he wanted a strike, and our best boy, 'Lightning Ken' Sylvester, would listen to the dialogue on headphones and cue the effects so that they would be consistent throughout the scene as we changed angles."

The cinematographer was extremely happy with the way black hues held up in *The House of Yes*, which was shot primarily on Kodak's 500 ASA 5298. "I wish we could have shot with the [Vision] 5279, but the stock had just been introduced at the time and was too expensive. We did shoot some flashback footage, featuring Josh Hamilton and Tori Spelling, on 48. We wanted a fine-grained stock to contrast their experiences together with the rest of the film. But looking back on it, I wish we could shoot the whole film over again on 79, which is one of the best stocks Kodak has ever come out with."

To gain another edge on the darkness, Spiller utilized Zeiss Superspeed lenses in conjunction with his Arriflex cameras. "We used 18mm through 135mm lengths," the cameraman says, "and I always used an ⅛ Tiffen Black ProMist and a ¼ SoftFX filter. During my tests, I found that the Superspeeds were just a bit too sharp, and that combination of filters was quite flattering without diffusing practicals; the candles were a particular concern. With a hard source, the glow created by heavier diffusion would have been too much."

The House of Yes will be released this month by Miramax. ◆

Cinema's "Existential Cowboys"

Leading key grips shed light upon their working relationships with top cinematographers.

by Brooke Comer

According to popular rumor, Steven Spielberg once said that were he ever stranded on a desert island, he'd want only two things: a good book and a good key grip. The director's implicit message, of course, was that a good grip is a virtual Houdini, capable of turning a few palm trees into a seaworthy raft in mere minutes, or transforming a stark beach into a tropical paradise before sunset. "If Leonardo da Vinci were alive today, he'd be a key grip," speculates cinematographer Woody Omens, ASC. "Grips are master inventors, and they have to create their inventions quickly and economically. They have to have an architect's sense of structure, and be master problem solvers in time and space."

Indeed, in an article she penned for the *New York Times*, producer Lynda Obst once referred to grips as "existential cowboys" whose mastery of highly specialized skills makes them an invaluable asset on the set. To Omens, the

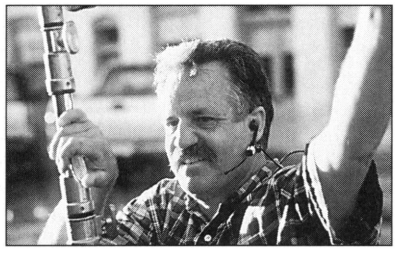

Photo by Christine Loss

relationship between the cinematographer and the grip is crucial, because "ideally, the grip and the cinematographer must think as one. They become one person, they are one eye."

The dolly grip also deserves special attention, Omens maintains, "because I strongly feel that the dolly grip should be part of the camera crew. There's a real intimacy between the work that the cinematographer and the operator do together, and I believe that dolly grips share in that intimacy — their work is a fine art. So many problems get solved when a few dolly tracks are built."

Sandi Sissel, ASC, who at press time was out of the country shooting *Barney's Great Adventure*, describes what a grip does "as a uniquely American thing." Sissel points out the diverse degree to

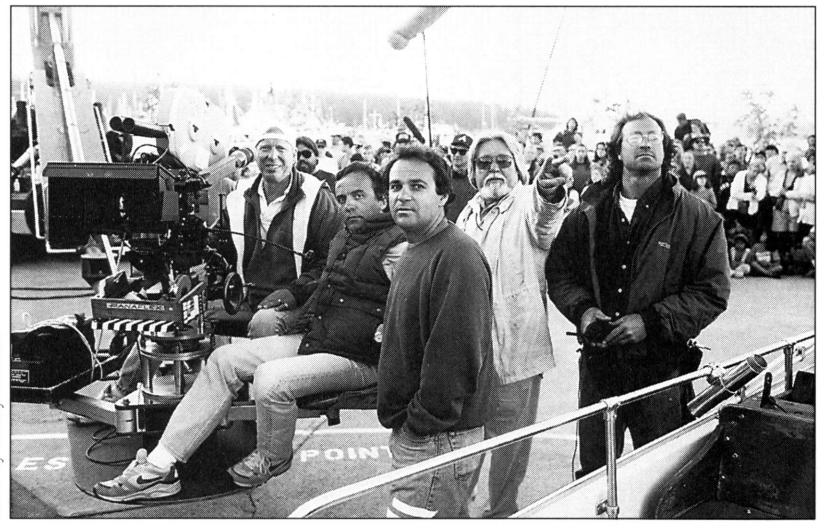

Photo by Sidney Baldwin

Top: ***(From left) Operator Joe Tibo, first AC Zorn Veselic, second AC Mike Raspa, cinematographer Laszlo Kovacs, ASC and key grip Gary Kangrga shooting on San Juan Island for*** **Free Willy 2. Far left:** ***Veteran key grip Dick Deats, the inventor of the Griffolyn and other essential production tools.***

which U.S. grips help cinematographers: "They do an enormous amount of rigging, and they stand by the director of photography's side to help with artistic and mechanical decisions." Outside the States, Sissel finds that productions in such English-based Canadian cities as Vancouver and Toronto offer American-style crew systems, while in the Francophone milieu of Montreal, Quebec and all through Europe, "key grips deal mainly with the dolly track. The gaffer tends to be the chief electrician, and does everything that relates to lighting — flagging, silking, and the other things we usually depend on grips for."

The three grips Sissel works with most often are Tony Marra, Mike Pizzuto and Tim Pershing. "They've all not only set the dolly track and worked the cranes, but they've set the flags and silks and really rigged actors safely," she says. "They've harnessed the camera, and harnessed me — in many ways, they are the nurturing males on the set."

With the advent of Louma cranes, Technocranes and remote heads, Sissel notes that key grips often help to design camera moves. "They control all of the arm moves, and therefore contribute a great deal of artistic input," she observes. Sissel has come to depend on her grips for special help. As she notes, "Only when I don't have a good grip do I realize how invaluable they are. Tony, Tim and Mike tend to stand by my side on the set. At any given moment, they can jump in and handle any of the tasks that become necessary." An extraordinary grip, says Sissel, "is an expert organizer and a kind of protector on the set, someone who can take on any kind of problem involving the riggings, cameras or lights."

Tony Marra, one of Sissel's trio of top grips, agrees that American grips are always willing to go the extra mile for a cinematographer. "British directors of photography always tell me that I'm spoiling them," he says. "In

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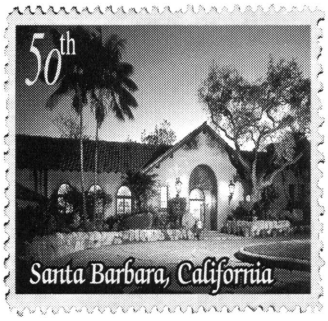

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America, grips add to the lighting capabilities by shaping light for cinematographers and giving them exactly what they want to see. We're a driving force on the set. In Europe, they don't want to fly any overhead butterflies."

Marra, who most recently worked with Sissel on the TV movie *The Innocent*, loves to collaborate with the cinematographer, "because she's so open to the movement of the camera. I love trying to get encompassing crane shots and dolly shots, whether they cut into the master or not. Sandi is always interested in giving us the freedom to try something new. She's like a breath of fresh air."

Marra also grips for director Robert Altman, another advocate of lengthy and intricate camera moves. "Altman doesn't do a conventional master over single shots," Marra notes. "He likes to carry a piece so the actors can work it out, and then present it to viewers like a staged play." As an example of this creative ethos, Marra cites the eight-minute opening scene of Altman's *The Player*, which introduces all of the film's main characters in one continuous shot. "I always like to give the actors more to work with, to give them more reign over the territory," Marra submits.

In the eyes of cinematographer Bill Dill, a good key grip is the cinematographer's trusted safety advisor. The heat of a given light, as well as the steadiness of mounts and cranes, must be ascertained by someone who knows the point at which they can become dangerous. The relationship between grip and cinematographer must therefore be one of implicit trust. "When you've got a light over an actor's head," says Dill, "it's up to the grip to determine if the mount can support that weight. And getting on and off a crane can be hazardous; you have to wait for the dolly grip to answer to the key grip as to whether that particular crane is safe. If it's not safe, it shouldn't be on the set. After all, it's only a movie."

Dill has special ties with grips Derek Wells and Gary Nepa. Wells, a second-generation grip who began his career fresh out of Marine boot camp, describes his peer group as "the most unsung heroes in the industry, because we make it happen." His lifelong exposure to gripping has made Wells something of an expert in grip trivia. "Not many people know that grips wore suits in the early Twenties," he reveals. "Back then, the job mainly involved assisting the camera crew in moving those big, heavy 100-pound cameras."

Wells points out how far grips have come since that early era: "Now, we can take a light and mold it to any shape. You can't just turn on a 10K and start shooting; the shot has to be cut and made to look agreeable to the eye. Sometimes you have to diffuse to hide shadows, because in the real world there aren't as many shadows as there are on a studio set."

According to Wells, the grip-cinematographer relationship is complex, because the grip's domain is so extensive. "We interact in so many different areas. In addition to lighting interiors and exteriors, rigging, and dealing with things like cars and planes, the job also involves artistry, engineering and on-set politics."

Wells says that when he works with Dill, "I never try to get into Bill's head. Instead, I try to anticipate the challenges, then take his ideas and bring them to life." He notes that Dill likes to use a nine-light Fay unit. "We build our own frames to put in front of the light to achieve the look Bill needs for each show," he explains. "A lot of cinematographers work that way, which is why they like to work with certain key grips who will bend over backwards to get that look." Wells describes Dill's approach to filmmaking as "scientific and analytical. He'll break each show down in terms of what each department will need before we get on the set and start work. I appreciate that, because it helps me home in on what needs to be done."

Well's experiences with Dill gave him an edge when he worked with cinematographer Elliott Davis on Spike Lee's *Get on the Bus*. "It was my first time working with Elliott, and more than anything else, he needed his key

grip to be in his corner at all times. The gaffer and I were his left and right hands." The film had to be completed over just 3 ½ weeks in four different cities. "Spike sat us all down at the beginning and told us we had to do our homework and be prepared, because we didn't have time to screw up. Fortunately, we didn't."

Dill admits that his preference for working with big, soft sources makes his grips' job more difficult. "It's hard to cut a big source," he notes. Dill recalls working with Wells on the movie of the week *Mantis*. "I was using a Maxi-Brute, and Derek gave me a flag, a big solid suspended from one of the two Condor cranes I had up — one for the light and another one Derek had ordered especially for the solid. Basically, I had the same essential ability to cut light that I'd have with a smaller source."

Dill also notes that grips have to be astute when dealing with wind conditions that arise during exterior shoots. "I've done a lot of night exteriors, and when I'm working with big sources, flags have to be flown high off the ground. The cutting angle is narrow, which makes it more difficult for my grips. But they always make it happen without a lot of noise."

When Dill and Wells worked on *Murder Was the Case*, a long-format music video directed by Dr. Dre for rapper Snoop Doggy Dog, Dill needed to clear a path for Steadicam operator Kirk Gardner. "Some people think that once you bring in a Steadicam, the grip's job is done," Dill notes. "But that's not true." The Steadicam operator had to follow a character entering a building, then move up to and through a low exterior window so that the camera could meet up with the actor at a party within the building. "To pull it off," says Dill, "we had to build a ramp to get up to the window, and use a hydraulic lift platform so the Steadicam operator could get down once he was inside the window. And it all had to be built before lunch!"

Wells remembers the *Murder* shoot as "a single seamless shot during which the camera never stopped rolling." He also notes that Gardner, the Steadicam

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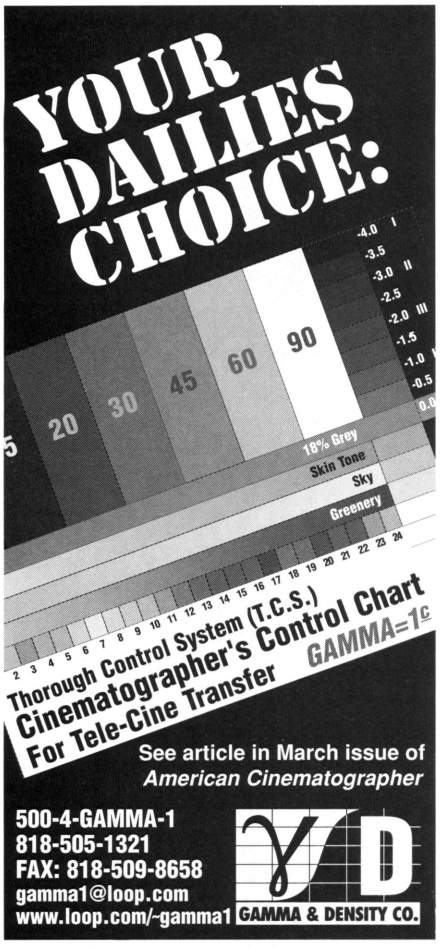

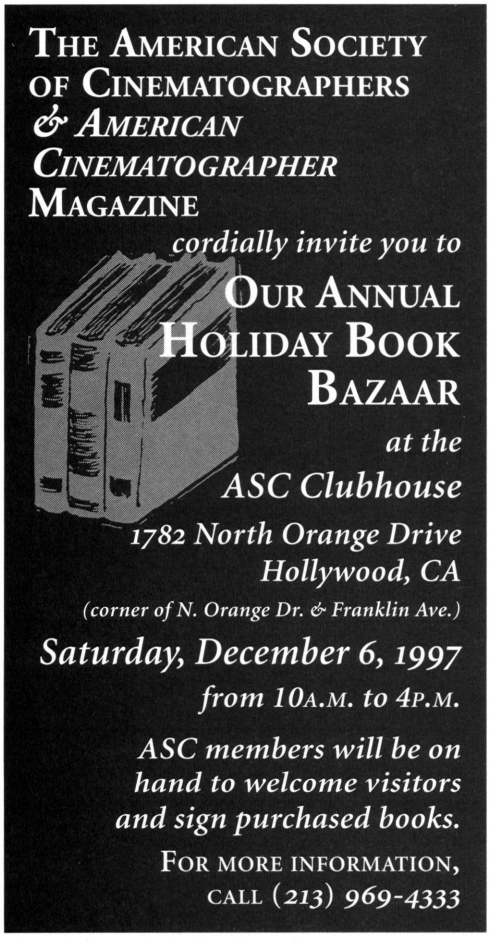

operator, "is a large man, over 240 pounds," and had to get through a 6' x 3' window that was five feet off the ground. "With the apparatus attached to Kirk's body," Wells notes, "he was about 6' 1" and two or three feet wide, which made my job difficult." The ramp had to be strong enough to support the operator, yet light enough to move in and out of the shot without being seen. Wells accomplished the task by attaching a special platform to the head of a Fisher 10 dolly. He recalls, "Kirk helped by keeping the camera moving as he stepped into the window and we boomed the dolly down."

Gary Nepa, a grip who worked with Dill on Robert Townsend's comedy *B.A.P.S.*, notes that "while the grip's role changes depending on whether you're doing a commercial, or a music video or a feature, the grip's relationship with the cinematographer never changes." A grip, says Nepa, is responsible for "all methods of camera movement and all methods of controlling light." The nature of the grip/cinematographer rapport boils down to "fulfilling each cinematographer's vision — which isn't always easy, since each cinematographer has a different way of expressing that vision. The cameraman has to tell his key grip exactly what he wants, and give the grip guidance in terms of what's expected next. That way, the grip can anticipate things, and be more prepared. Most importantly, though, the grip and cinematographer have to think in sync. If they can meet up on these points, it should be a smooth transition from shot to shot."

Nepa has also worked with cinematographer Jeff Jur, who helped him rig cameras to shoot car crash scenes for the unaired NBC pilot *Cutty Whitman*. Nepa will never forget the 12 days he spent in Prescott, Arizona, helping Jur execute a sequence in which a jeep is chased down a cliff by motorcycles. "The real challenge was to create the same point of view that the driver of the crashing jeep would have, so we mounted Eyemo cameras inside the jeep," explains Nepa. Jur bonded with his grip on the challenging shoot, and later called him to do another TV show, but Nepa was already busy on another Bill Dill project. "Bill and I are respectful of one another, and we know how to get things done together," Nepa says. "We also know when to bring a little humor in to lighten things up."

The nature of a grip/cinematographer relationship, Nepa notes, differs depending on the director of photography's experience. When the grip worked with Jeff Cutter, "who is a very talented but relatively new cinematographer who's still learning his art," Nepa was able to help Cutter define and strengthen his relationship with other crew members. "There are things that we can do for him that he might not ask us to do because he doesn't expect it. An experienced grip can be a good teacher for a director of photography who's just coming down the pike. We can give them more tools than they may have expected, and help them expand their abilities."

> **"It's very rewarding when you can pull rabbits out of hats all day, every day, and do things on the spur of the moment that are inspiring to you and to others. Gripping is a very creative job."**
>
> — Dick Deats

When Nepa worked with cinematographer Stuart Dryburgh on Jane Campion's *Portrait of a Lady*, he found the experience to be very different. "Stuart is a talented and well-established gentleman who's been around the block. He knows what works. He is always very specific about what he wants to see, and yet he's very open to suggestions, which creates a very interesting work relationship."

Another accomplished key grip, Dick Deats, is a second-generation expert whose son, Jerry C. Deats, has also taken up the

trade. Deats has been gripping since 1963. "There was a studio apprentice program back then," he recalls. "You started out on the backlot and didn't work on a production for five years." He finds that gripping is a special industry niche that attracts dedicated workers. "Most key grips I've known live to serve. They have incredible egos, and they aren't in it just for the money. I know maybe six grips who became cinematographers, and a few of them went back to keying. It's very rewarding when you can pull rabbits out of hats all day, every day, and do things on the spur of the moment that are inspiring to you and to others. Gripping is a very creative job."

According to Deats, the relationship that grips and cinematographers share "has a lot to do with the special needs of that cameraperson, and with the logistics of shooting. It's a question of knowing if the light is just right, too bright or too dim. It's also a question of the grip making the cinematographer's wishes and dreams come true, however that can be done." Deats calls ASC members Vilmos Zsigmond, Laszlo Kovacs, Haskell Wexler, Caleb Deschanel, Stephen Goldblatt and Andrzej Bartkowiak, six cinematographers with whom he's collaborated, "not only wonderful people to work with, but good friends too."

One of Deats' most interesting collaborations was his pairing with Zsigmond on Steven Spielberg's *Close Encounters of the Third Kind*. One of the job's major undertakings was the construction of a temporary extension to a hangar in Mobile, Alabama. "The structure was 200 feet wide and over 300 feet deep, and it had to be blacked in, with tarps over all the windows to keep the light out," Deats remembers. Because it was temporary, the extension had to be taken down when shooting was completed. "It was a huge amount of work," says Deats. "We had weeks to build the extension, and then we had to maintain it for six months till the filming was done."

Several years later, while shooting *Heaven's Gate*, Zsigmond found that he required a light-

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weight, portable crane. To fulfill this need, Deats invented the Little Big Crane, which won an Academy Award for Best Special Achievement in 1983. Deats recalls that director Michael Cimino "hadn't used cranes much, and wasn't planning to use a crane for that movie. But I'd worked on a lot of Westerns when I started out in this business, and I felt that to do a Western-type movie without a crane would be a disaster. A person on horseback is 10 feet up in the air, and without a crane, you're shooting up into the sky and there's no vista." Deats had a lengthy discussion with Zsigmond to convince him to bring a crane to the Montana location, but to no avail. "They didn't want to bring a crane, until I told them my idea about building one that was portable and could be put anywhere. Vilmos agreed to help fund it if I'd build it and make it available to the film company on an as-needed basis." Deats built the crane, and the company wound up using it four workdays out of seven. The inventor recalls, "They were happy to have it up in the woods, and in the plowed fields, where the portability factor came in very handy."

Deats' dedication to serving his cinematographers also resulted in another invention: the Griffolyn. "It's made from a material similar to plastic or propylene that's used as temporary covers for football fields, and big grain barges that go up and down the Mississippi," he notes. The dimpled texture of the nylon netting "has an incredible light quality," says Deats. He made up some large reflective surfaces and showed it to Kovacs, Wexler and Zsigmond as a prospective means of bouncing light. "Now you can go anywhere in the world and ask for a 12' x 12' Griffolyn, and everyone knows what it is, because I began building them for these cameramen."

Deats calls his relationship with Zsigmond "a personal as well as a professional one, because we work well together and we socialize off the set. We have dinner together and our families are friends. Bonding with a cinematographer is part of a grip's job," says Deats. "You work so

closely with that person's desires that you can't help but become emotionally attached to the person. And the longer you're involved in the business, the more you become partial to a few particular people whom you work with over and over."

"Grips do it all," Laszlo Kovacs maintains. "They rig, create camera positions from the most impossible places, build dolly tracks, set flags and nets and support the electrician."

Kovacs considers himself fortunate to have worked with some of the best grips in the business, including Gene Kearney, with whom he's worked for 10 years on various projects (including *The Legend of the Lone Ranger*, filmed in the rugged Southwest), and Gary Kangrga, who's gripped with him for about six years (on such films as *Multiplicity*, *Copycat* and *The Scout*). "Every grip has a different forte — an area in which he excels," Kovacs observes, "But basically, all good grips perform well overall. That is important."

Kovacs says that Gene Kearney's special talent is construction. "Gene's an absolutely superior person with an incredible personality who can run a team and relate to everybody. In a way, his forte is 'everything,' but his true expertise lies in building things," says the cameraman. "He can build a camera platform, a car rig— you name it. Gary is also good about helping to create a lighting effect. I have a huge 20K unit, and if I tell him I want to diffuse and take the soft light out, he's always incredibly well prepared. In a matter of seconds, he can give me the right kind of diffusion and control it so it doesn't spill everywhere."

Both Kearney and Kangrga have high regard for Kovacs. Kearney offers, "In this line of work, you tend to have favorite cinematographers with whom you form personal and professional relationships. With those people, you can understand in one initial conversation how a film will be shot, the look it will have, and whether or not it will be done in moving shots or in a more classic style with stationary setups."

Kearney says that Kovacs

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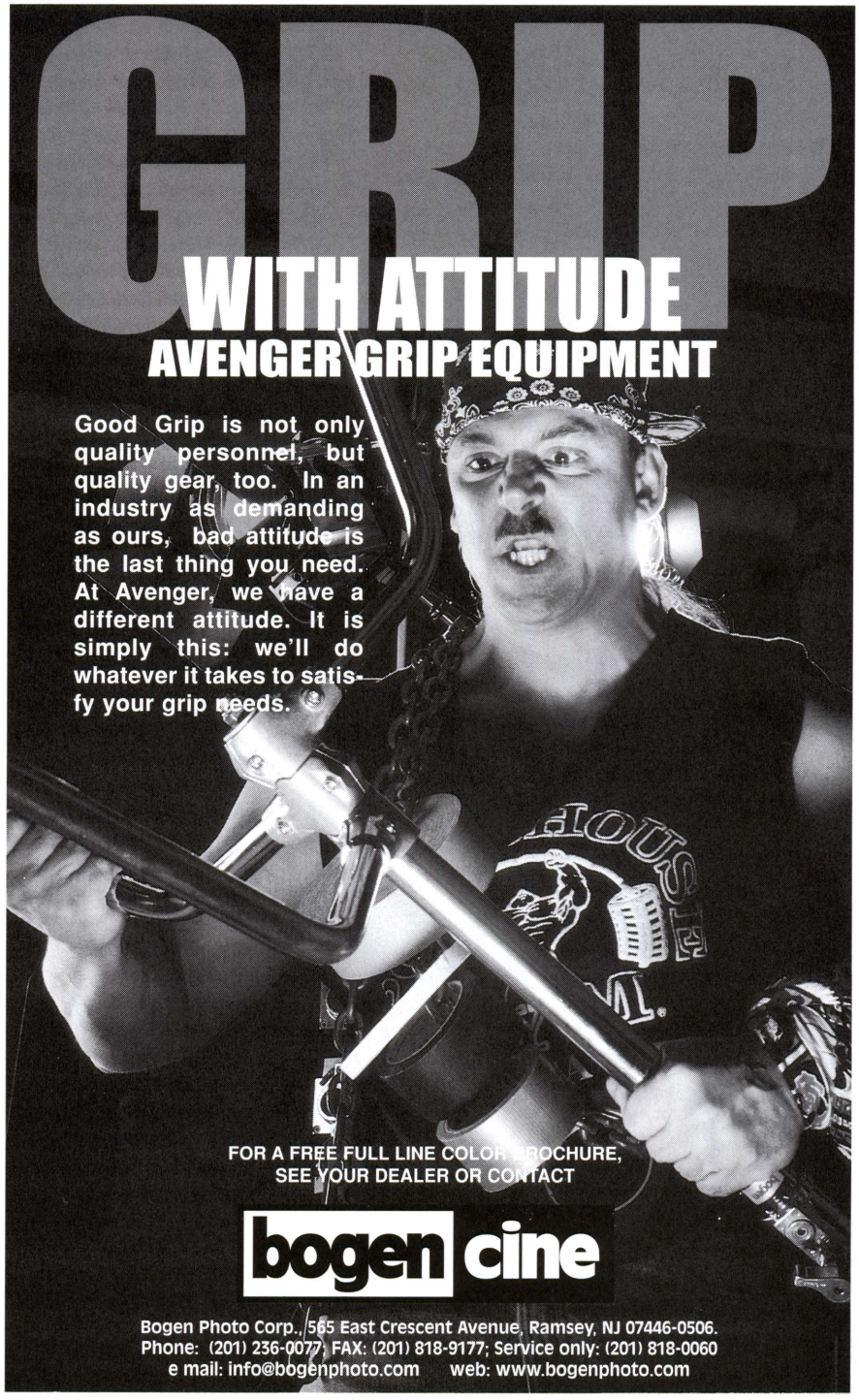

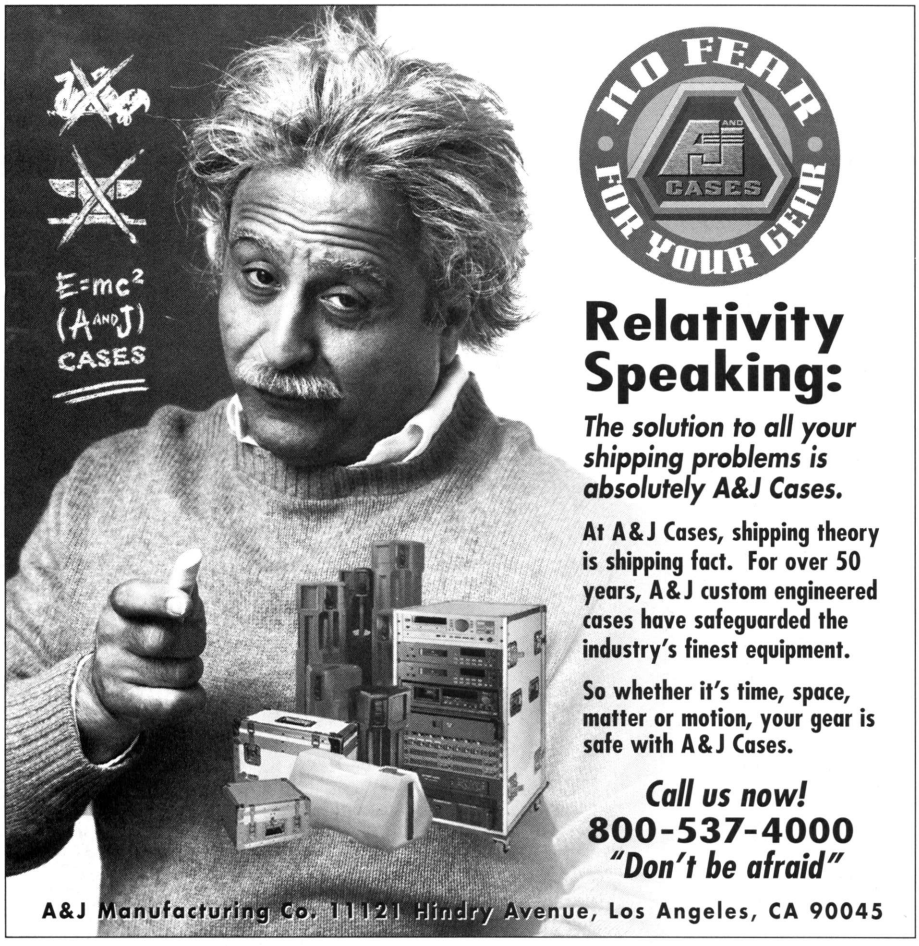

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and Sven Nykvist, ASC are two of his favorite cinematographers. He explains, "They've got a tremendous amount of experience, so they can be very specific in describing what they want to do. I always know how a scene will be lit or blocked; there's no experimenting as we go along. The most complicated setup can become very simple. Even after some 30-odd years, I still look forward to working with those two men in particular."

Kearney has vivid memories of shooting *Cannery Row* with Nykvist. An entire waterfront town had to be built on an MGM stage, with the streets tunneled through two studio blocks. "I was lucky to have four weeks of experimenting with day and night looks, rain and fog, morning and sunset. That was a film I won't forget, because it's the kind few people get the opportunity to do anymore. We had to use lighting to create different times for a town that didn't really exist."

When Kearney worked with Kovacs on the romantic comedy *Say Anything*, starring John Cusack and Ione Skye, the actors had to deliver pages of dialogue in a moving car. "Young actors don't do the same thing over and over," Kearney notes, "so for this picture, we decided to shoot the day and night moving car interiors with four to five cameras mounted on the car, simultaneously. That type of setup is tricky, because what's good for one camera isn't necessarily good for the others. Each cut had to match so we could avoid having to do the dialogue all over again from another angle. And each cut did match perfectly. It was a tremendous time-saver."

Kangrga says of Kovacs, "He's a great person, a great personal friend, and a genius at what he does. When we work together, I try to be as accessible as possible, yet also stay out of his hair, because he's constantly rethinking and reshaping ideas."

The grip was particularly impressed with the complicated shots Kovacs designed for the thriller *Copycat*. "Basically, the

camera was always moving. We used a lot of Steadicam shots, and we gave Chris Squires, the camera operator, maximum flexibility to negotiate doorways." One shot started in a second floor bedroom and went downstairs; Kangrga safetied Squires, who doubled as operator/Steadicam operator. Squires backed down the stairs, moving through several doorways and down another flight of stairs into a basement. At the point when Squires backed out of the way to let the talent walk in front of the lens, a landing had to be built to give him a place to stand before he proceeded down the stairs. "At that point," says Kangrga, "the long shot wasn't even half done yet, but it was so well-designed that the result was very dramatic. It showed the depth of the conceptualization and of Laszlo's vision for the scene, which he developed with [director] Jon Amiel. Being around that kind of creativity is a tremendous inspiration."

Kangrga faced a completely different challenge with Kovacs on *Free Willy 2*. "All of the whales were animatronic, but that didn't make it easier than working with live animals," he notes. "At the end of the workday, they'd go into the shop to be rebuilt, and we had to worry about whether the action would match what we needed them to do. Worse still were the elements — the changing tide and the weather in the San Juan Islands."

Kangrga notes that he and Kovacs team up even when they're not on the set. "We enjoy good conversation and a good bottle of wine," says Kangrga. "When we're working, I try to make him look good, just as the guys I hire make me look good. We've occasionally found ourselves in unpleasant situations, but we always work hard and smart. The camaraderie always makes it worthwhile." ◆

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Tony Wilson (Rock Hudson) struggles against his bonds as the grisly end draws near. Shot by Howe with a bug-eye 9.7mm lens, the image perfectly captures the film's central theme of distortion.

Film historians generally acknowledge that the transformation from the Hollywood studio system to the American "New Wave" occurred with the 1969 release of *Easy Rider*. This counterculture classic, directed by Dennis Hopper and photographed by Laszlo Kovacs, ASC, revolutionized cinematic storytelling with a visually and aurally driven style that broke away from the classic literary, narrative and pictorial devices familiar to older moviegoers. But the liberation of the motion picture camera had actually occurred a bit earlier, in the mid-Sixties. It's ironic that during a highly politicized era in which anyone over 30 was subject to mistrust, a leader of this cinematic insurrection was the renowned 67-year-old cinematographer James Wong Howe, ASC, who had been born at the end of the 19th Century. The veteran cameraman's work on director John Frankenheimer's 1966 film *Seconds*, a controversial and misunderstood picture, would later exert a strong influence upon the future of American moviemaking.

In the fall of 1964, Kirk Douglas was appearing in the original Broadway production of *One Flew Over the Cuckoo's Nest* when he announced in the trade papers that Joel Productions, in conjunction with Frankenheimer, had acquired David Ely's novel *Seconds* for $75,000. Douglas, Frankenheimer and producer Edward Lewis had brought *Seven Days in May* to the screen via Paramount, and were anxious to work together again. *Seconds* was to be the inaugural project for the newly constituted Douglas and Lewis Productions, and ultimately became part of a two-picture deal established with Paramount. Production began in 1965.

Seconds is a contemporary horror story centering on Arthur Hamilton, a middle-aged, upper-class suburbanite who is dissatisfied with his affluent but mundane lifestyle. Hamilton is offered a second chance at youth and a new, vital way of life by a mysterious, nameless Company — in exchange for his substantial wealth. After being "killed" in a planned accident, Hamilton is physically transformed through plastic surgery and supplied with the new identity of Tony Wilson, an established painter living in California. "Wilson" is provided with a manservant, friends, a portfolio of his "art" and even female companionship. The inner Arthur Hamilton, however, becomes overwhelmed by the organization's Big Brother control tactics, and begins to feel the conflict between his past and present identities. After suffering a mental breakdown, Hamilton asks the Company for a chance

The Surreal Images of *Seconds*

Master cinematographer James Wong Howe, ASC lent a seasoned eye to director John Frankenheimer's horrific tale of "rebirth."

by Vincent LoBrutto

to forge a self-defined and meaningful existence, but is unable to comply with their requirement that he recommend a new client for their nefarious purposes. Otherwise useless to them, Hamilton meets his fate as he enters what the Company calls the "next stage" — becoming a cadaver for use in a another customer's staged death.

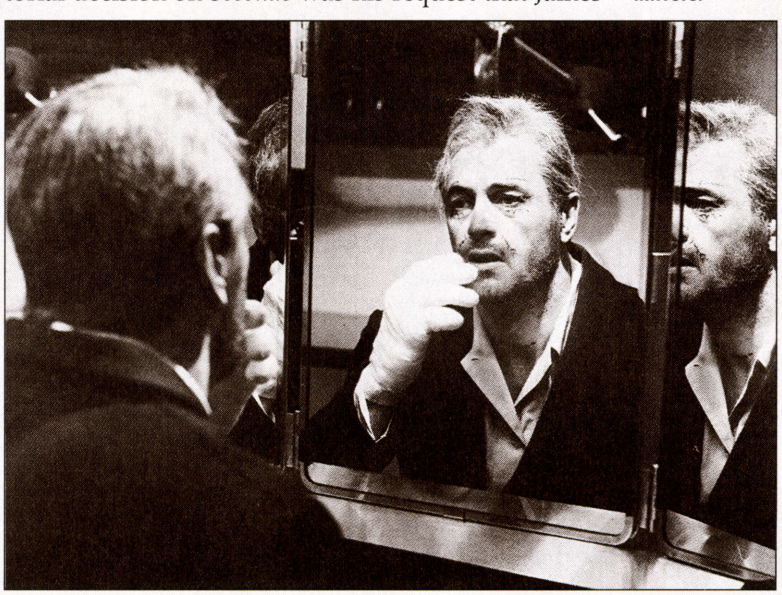
At the time *Seconds* was made, 36-year-old John Frankenheimer was part of a new breed of directors trained in the "Golden Age" of live television in the Fifties. Following his prestigious work in television dramas for the series *Danger*, *Climax*, and *Playhouse 90*, Frankenheimer developed his astute pictorial style for the big screen on provocative films such as *The Young Savages*, *All Fall Down*, *The Birdman of Alcatraz* and especially *The Manchurian Candidate*, a political thriller which entered the mind of a brainwashed man through a baroque use of black-and-white imagery, expressive production design and a paranoic filled plot.

After Frankenheimer returned from filming *The Train* in Europe, he was propelled in a new creative direction. Hollywood movies were still produced primarily in the studios, where style and content could be heavily managed, but Frankenheimer decided that he wanted to create films outside of studio confines. For *Seconds*, Frankenheimer planned to shoot on the East Coast in New York's Grand Central Station; in Scarsdale, a suburb of Westchester County, for scenes involving Hamilton's firstborn life; and on the West Coast in Malibu, California for the sequences that occur after the character's artificial rebirth.

The novel and screenplay had a surreal quality which suggested an extreme visual approach to Frankenheimer, who liked to use the armature of a simple story to construct a complex visualization. Frankenheimer saw in the project the possibility of creating a disturbing blend of cinema verité, science-fiction and horror elements.

Frankenheimer's original intention was to have Kirk Douglas play both Hamilton and Wilson, but he was not satisfied with the idea of using extreme character makeup to disguise the highly recognizable actor. Then, during preproduction, Douglas bowed out due to other contractual commitments. After sifting through many leading-man choices, Frankenheimer went ahead with the unlikely choice of Rock Hudson, best known for his light comedic romps with Doris Day. Hudson was not considered a serious dramatic actor, which the anguished characterization of Wilson required, but he was looking for a challenge and the studio was appeased by a marquee name. Hudson, however, insisted that he should only play the post-operative role of Tony Wilson. Frankenheimer, who had not previously considered a two-actor transition, therefore cast veteran actor John Randolph to play the middle-aged Hamilton — later crediting Hudson with idea of using two performers.

Perhaps Frankenheimer's most crucial directorial decision on *Seconds* was his request that James



Left: *Dr. Innes (Richard Anderson) and the Old Man (Will Geer) prepare Hamilton for his new post-operative visage. Howe frequently shot directly into hot sources.* Below: *Hamilton cringes at the sight of his scarred and bruised face — fractured by a careful use of mirrors.*

Drugged by the Company, Arthur Hamilton (John Randolph) grapples with a mystery woman (Francoise Ruggieri) in a bizarre bedroom crafted by production designer Ted Haworth.

Wong Howe serve as director of photography. A seasoned Hollywood professional who always sought to bend the rules and express a story in vivid visual terms, Howe was a perfect collaborator for the youthful and ambitious Frankenheimer.

Howe was born Wong Tung Jim in Kwantung, China on August 28, 1899. He began his more than 50 years of dedication to cinematography during Hollywood's silent film era, making his debut behind the camera on 1922's *Drums of Destiny* for the Jesse L. Lasky Studio. Howe became a visual stylist who created atmosphere and emotion with his commanding application of the tools of cinematography. During his career, he worked with many first-tier directors, including Victor Fleming, Howard Hawks, Frank Borzage, Erich von Stroheim, Busby Berkeley, Raoul Walsh, Michael Curtiz, Fritz Lang and Lewis Milestone. Howe's stylistic hallmarks were deep-focus photography, low-key moods, film noir, and naturalistic, romantic and expressive lighting effects. He became a master of black-and-white photography while working on an impressive roster of films that included *Air Force; The Power and the Glory; Body and Soul; Come Back, Little Sheba; The Sweet Smell of Success* and *Hud*, which earned Howe the 1963 Academy Award for Best Black-and-White Cinematography. He had previously earned an Oscar in 1955 for his color cinematography on *The Rose Tattoo*, photographed in VistaVision.

The central visual metaphor of *Seconds* emerged from Howe and Frankenheimer's experimentation with a 9.7mm fisheye lens. "In *Seconds*, the [idea of] distortion was terribly important," Frankenheimer told Gerald Pratley in 1969. "The distortion of what society had made this man, what the Company then turned him out to be, and finally when he was going to his death — everything had to be that complete distortion of reality and the fact that it was all just utter nonsense."

Noted graphics designer Saul Bass' unsettling opening credits introduce this theme, as disturbingly extreme close-ups of a man's face (presumably Hamilton's) twist and contort behind stark white typography. The images were created in camera through the use of macro lenses and a flexible Mylar-like mirror.

The motif was continued by production designer Ted Haworth. Some sets were designed to be distorted in perspective and were photographed with normal lenses. Other sets were designed in normal proportions and shot with extreme wide-angle lenses that warped their presentation. One of Haworth's key contributions was the Company's mazelike offices, consisting of a long corridor with interconnecting offices, a waiting area and an operating room. The enclosed set led Howe to experiment with optics and camera movement to heighten the tale's terror, best evidenced at the end of the picture as Tony Wilson is strapped to a gurney and wheeled into the operating room — thrashing and struggling as he realizes the end is near. The camera, often mounted to the gurney and fitted with either the 9.7mm or an 18mm lens, is an unflinching witness to Wilson's desperate yet vain efforts to free himself; the optics bend the set walls inward, adding to the claustrophobic horror of the sequence.

Another of Haworth's notable creations was a bedroom set that appears in a drug-induced hallucination sequence. Frankenheimer wanted the scene to be "almost psychedelic," and succeeded in striking fashion. After Hamilton is dosed by a Company agent, he dreams of molesting a young woman in a bizarre chamber. The room's heavily textured walls raked at extreme angles to create a false sense of perspective, while the floor undulated beneath black-and-white checkerboard tiles. Exemplified by this scene, the physical and optical distortion achieved by Haworth's sets and Howe's cinematography combined throughout *Seconds* to create a disturbing, stomach-churning effect of a Kafkaesque universe.

Richard Anderson, who played Dr. Innes, the ruthlessly hi-tech Company plastic surgeon who transforms dissatisfied, middle-aged men into vital-looking "reborns," says that the collaboration between Frankenheimer and Howe produced a distinctive vision. "The script triggered the vision of [the picture] as almost a horror film," says Anderson. "I was delighted to work with the man who had photographed *Body and Soul* and all of those wonderful black-and-white pictures. James Wong Howe was hugely responsible for the mood of the movie visually, because he had such a striking vision of his approach. I was struck by the low-key quality of his work. John Frankenheimer has a great feel for camerawork, and he's very expressive and dramatic. The wide angles were used to extenuate the mood. I could see that they were going for unique ways of telling the story."

Because of the extensive use of wide-angle lenses, *Seconds* was a demanding exercise for the film's camera operators. The visual approach required multiple cameras (often handheld), oddly-placed framing and unusual camera movements. A bedroom scene in which Hamilton realized that he cannot make love to his wife was photographed simultaneously with four handheld Arriflex cameras. These various angles were covered by Frankenheimer, Howe and two other operators at the other positions.

In July of 1965, Hollywood film production was in a growth period, so Howe found it difficult to keep up with the project's demand for operators. Aiding him were Roy Clark, John Stephens and an uncredited John A. Alonzo, who would later become one of the industry's most notable cinematographers and an ASC member. Alonzo was shooting documentaries for David L. Wolper when he was summoned to the set of *Seconds* to help out. "Local 659 had absolutely no operators available," recalls Alonzo today, some 32 years later. "Herb Aller, the business agent for the Local, called Wolper and asked if anyone there could operate, especially on handheld work, so I was sent over by production manager Burt Gold."

Alonzo arrived at Paramount Studios that afternoon and joined two other operators brought in for that night. "I was very excited, " Alonzo remembers, "because Jimmy Wong Howe was shooting the picture, Frankenheimer was directing and Rock Hudson was the star. But I was warned by Herb Aller that this was just a one-night job."

Arriving at the set — which depicted Tony Wilson's Malibu bachelor pad — Alonzo found himself "just hanging out" and observing Howe for much of the night, until the famous cinematographer turned to him and pointedly asked, *"What do you do?"*

After Alonzo explained that he had been brought in to operate, Howe said to him, "Well, then pick up the camera."

"It was a little Arriflex and the lenses had those butterfly ears for pulling focus," Alonzo says. "They had assistants to help you follow focus, but I was a documentary cameraman and wasn't used to that. I explained that I just wasn't used to having a focus-puller, and Howe said, 'Can you follow your own focus?' I told him I could and he basically responded, 'Well, don't screw it up, kid, or you're in trouble."

The scene at hand was a cocktail party that Wilson holds for his neighbors. During the festivities, he drunkenly alludes to his secret past — much to the ire of several guests, whom he shockingly discovers to be fellow Company reborns. Seeking realism, Frankenheimer had Hudson actually get drunk for the scene — a risky tactic which demanded that many shots be covered in one take by multiple cameras. Hence the need for Alonzo and the other operators.

Director of photography James Wong Howe, ASC.* Seconds *marked the end of his illustrious career in black-and-white cinematography.

"My first shot had Hudson coming into this crowded living room full of people smoking and drinking," Alonzo remembers. "I was in front of him, walking backwards through the crowd, photographing him with a fairly wide 24mm lens. Three cameras were rolling, and I heard one of the other operators say to Howe, 'He got in my shot,' meaning me. Howe asked about my shot, 'How was it, kid?' And I said, 'Very good.'

"Howe could tell if a shot was working, so he just told me to do it again and not worry about getting in other people's shots."

Instructed by Howe to "make it more complicated, create more movement, and let people get in the foreground," Alonzo found his documentary skills coming into play; he even grabbed extras with a free hand and pulled them in front of the lens. Observing this tactic, Howe said to the operator, "That looked pretty good, but it better be in focus."

"I was just praying that they would let me come back the next night," says Alonzo. He received a call the following day from production manager Chico Day asking him to do just that, but the Local couldn't allow it. Impressed by Alonzo's skills, Howe, Frankenheimer and producer Eddie Lewis contacted

Drunk and deranged, Wilson lets his secrets slip at a cocktail party. His guests, Company reborns, aren't amused. For the sake of realism, Hudson was actually drunk while shooting the scene and the location was Frankenheimer's private beachfront home — he moved to a hotel to facilitate the production, all the while worrying that the crew would damage the property.

the union and lobbied Herb Aller to get him in the guild, to no avail.

Aller ultimately relented, allowing Alonzo in as a "second second assistant," and the two later became close friends. Some years later, Aller helped Alonzo upgrade his status to director of photography.

"I didn't get to work on *Seconds* again," says Alonzo, "but the experience of working with James Wong Howe was more important to me. He remembered me and recommended me for one of my first features [as a cinematographer]: *Sounder*, for Martin Ritt. I called Howe to thank him and he just said, 'You're the guy to do it. [Ritt] is the best director around, so help him out.' So that one night [on *Seconds*] was a moment of luck or fate that really changed things for me."

Multiple cameras again came into play for the film's opening sequence, which portrays Grand Central Station as a Gothic labyrinth. For certain shots, a camera outfitted with an 18mm lens was harnessed to actor Frank Campanella, who portrayed a Company agent in pursuit of Hamilton. The result was a strange, somnambulistic tracking effect as the camera faces Campanella, keeping him in the frame as the architecture of the station moves by in the background.

Frankenheimer came up with two working strategies to capture the actual commuters streaming in and moving through the well-traveled train terminal. Seven cameras, often handheld, were hidden from view. Two were inside the centrally located main information booth, others were in a newsstand and the stationmaster's office. A few cameras were even installed in suitcases to achieve eerie low-angle handheld shots as the operator, case in hand, surreptitiously followed Hamilton through the station.

Frankenheimer also staged a diversion in another part of Grand Central's concourse that allowed the filmmakers to work undisturbed. In the main thoroughfare, he had screenwriter John Lewis Carlino and a bogus crew fake the shooting of a scene which involved a well-dressed young man being greeted by a fully clothed blonde siren who, when the crowds began to encircle them, stripped to a brief bikini. The faux crew drew so much attention that few noticed Frankenheimer and Howe shooting the real setups elsewhere in Grand Central.

The production crew also filmed aboard New York, New Haven and Hartford, Connecticut commuter trains; Frankenheimer later noted that Howe operated the camera during the bulk of the scene. A handheld shot traces Hamilton on the train as the camera moves frenetically from his face to his hands, jump-cutting from one angle of the view out the speeding train window to an angle of a blurry, ever-closer suburbia, and then to another angle that jumps back and forth between the two views in rapid succession. In this scene and many others, *Seconds* utilizes the unconventional camera and editing techniques of the French *nouvelle vague*, while retaining a Rod Serling-like sense of story and tone: the film looks like a *Twilight Zone* episode directed by Jean-Luc Godard.

For a sequence of Hamilton arriving home, the crew went to Scarsdale to shoot at the local train station. To achieve verisimilitude, Frankenheimer and Howe again adopted a hidden camera technique to film actor John Randolph coming off the train in a real-life setting among real suburban commuters. Cameras were positioned in trash baskets, behind signs and in other places where they couldn't be seen by the public. At one point, Frankenheimer personally yanked a startled commuter out of frame when it seemed evident that a shot might be obscured.

During preproduction in May of 1965, a Paramount production manager had gone on a location scout in Scarsdale for Hamilton's suburban home, selecting a white clapboard house. A deal was struck with the owners, who were to receive $100 so the *Seconds* crew could film the exterior of their home. Haworth's art department designed and built interiors to match the exterior on a soundstage on the studio lot in Hollywood. However, two weeks before Frankenheimer and Howe arrived in the upscale Westchester community with a crew of almost 35, the tenants of the home changed their minds, saying they were going on vacation. Producer Edward Lewis told the production manager to offer to pay for the vacation, and penciled in $500 for work in Scarsdale.

Due to the use of wide lenses — and their close proximity to the performers — most of *Seconds* was shot without sound because of camera noise. However, filming *Seconds* as a silent movie gave Frankenheimer and Howe the freedom to concentrate on their elaborate visual style. "I believe that we are in the movie business, not the sound business," Frankenheimer told the *New York Times* during the making of the film. "It's the screen image that is important." Jerry Goldsmith's haunting score, the sound design, and heightened, re-recorded dialogue would later support the ornate visuals.

In a sequence suggested by Frankenheimer that was not in the novel, the director combined a free-wheeling verité camera style with a liberated European attitude toward screen nudity. After Hamilton assumes the identity of Wilson in Malibu, he encounters Norma Marcus (Salome Jens), an attractive Com-

pany operative who tries to break down Wilson's middle-class inhibitions so he can enjoy the sensuality of his new California lifestyle. The key scene of their courtship was shot at an actual Feast of Bacchus festival held every year in Santa Barbara, California, during which male and female sun worshippers shed all their clothes and cavort in a wine vat, stomping grapes and celebrating their nudity and free spirits. Frankenheimer decided to depict the scene in the more innocent setting of a nudist colony. A special wooden vat was built higher than usual to conceal some of the full-frontal male and female nudity. Wearing only a bathing suit and wielding a handheld camera, Frankenheimer shot the action within the vat amid the celebrants — mostly uninhibited non-actors on hand for the festivities. The participants became so energized in their Aquarian moment that they tried to strip the director of his only non-filmic coverage. "I wore a pair of black bathing trunks that lasted for about 30 seconds," Frankenheimer told critic Charles Champlin. "One of the women ripped them off. The whole thing was very stimulating. Trying to keep your eye on the camera with all of that going on was very, very difficult." The director shot the scene in a series of spinning swish-pans, as splashing grape juice blurred the lens.

In order to get a certificate to distribute the film, Frankenheimer had to submit to the conservative scrutiny of the Motion Picture Production Code, which ordered a long list of deletions. Paradoxically, by shortening and deleting shots, the festival sequence picked up a sexual energy. "The result was that it *looked* like an orgy, but it wasn't supposed to be and I didn't shoot it that way," Frankenheimer told Champlin. "The irony is that it was much more innocent in my version than in the one you see after the Code guys got through with it. You could also get a Condemned rating from the Catholic Church, and a major studio wouldn't go out with a Condemned rating on a picture. We had two priests looking over the movie saying, 'You have to cut this, you have to cut that.' Under protest, we did, and it ruined the whole intent of the scene." *Seconds* ultimately received a Class B certificate from the Legion of Decency.

The combination of Frankenheimer's keen visual sense and Howe's masterly use of the camera gave *Seconds* its uncommon look. The visual impact of the film was so strong that a measure of controversy developed around Frankenheimer and Howe's contribution to the film. In his 1970 book *Hollywood Cameramen*, Charles Higham remarked, "John Frankenheimer's [earlier] films have had the benefit of a consistently skilled cameraman, Lionel Lindon [ASC], but Frankenheimer's art has never looked more exciting than in *Seconds*, which allied him on one single occasion with James Wong Howe." In his book *Behind the Camera*, Leonard Maltin called *Seconds* "Howe's masterpiece" describing it as "One of the most brilliantly photographed films of all time."

The picture is an odd stylistic anomaly in Howe's filmography, however, and there is some debate regarding Frankenheimer's influence on the look of the picture. In the biography *James Wong Howe: Cinematographer*, author Todd Rainsberger spends the section on *Seconds* struggling to understand exactly where the extreme application of the 9.7mm lens, low angles, fish-eye distortion and jarring tracking shots — all of which call attention to technique — could have come from, noting, "*Seconds* often lacks a sense of artistic control; it reflects a camera gone wild, without restraint. Such excess was not among James Wong Howe's photographic characteristics."

In fact, Howe would later tell Higham, "On *Seconds* I didn't want the wide-angle lens, the bug-eye. I wanted that journey to the operating theater to be done in a simple style, with subjective camera, but John Frankenheimer differed."

If there was a struggle on *Seconds* between the director and director of photography, it may have been over the camera's domain and the delicate balance of control. In 1970, Frankenheimer and Howe worked again on *The Horsemen*, but this time the cinematographer found it difficult to deal with the director's fascination with the camera and emphasis on what Howe considered "gadgets" and "camera trickery." The cameraman walked off the project. In 1973, Howe told W.S. Eyman of *Take One* magazine, "I would say John needs a little help to hold him down. He tends to lose control. . . [using] handheld cameras when you don't need it."

Regardless, the camera is not merely a recording device in *Seconds*, but an expressive tool. By pushing conventional technique aside and working with a visual grammar of exaggeration and extreme graphic amplification, Howe and Frankenheimer revealed the mind of a man struggling to break free of his emotional bonds — 14 years before Martin Scorsese and director of photography Michael Chapman, ASC, would similarly attempt to capture the black-and-white torment of Jake LaMotta in *Raging Bull*.

Seconds was the American entry at the 1966 Cannes Film Festival, where it was poorly received. The film had a national U.S. release and quickly vanished after a few weeks in distribution. The ever-widening generation gap divided interest in the film. "At the time, people my age came up to me in droves and said, 'Wow!'" recalls actor Richard Anderson, who was in his mid-thirties when the film came out. "Older people in the business didn't know what was going on there at all." In time, *Seconds* found an audience and developed a cult following. Over the years, Rock Hudson received awards and praise from film societies and universities. He was often invited to college cinema classes and enjoyed talking to students about the film.

Howe received an Academy Award nomination for his work on *Seconds*, but the Oscar for black-and-white cinematography went to Haskell Wexler, ASC for *Who's Afraid of Virgina Woolf?*. Ironically, 1966 was the last year the Academy gave separate awards for monochrome and color cinematography. *Seconds* was also the last film that Howe shot in black-and-white, the medium in which he earned a reputation as one of America's finest cinematographers.

Howe's influence on the next generation of cinematographers was formidable. In the 1960s he

Wilson plots another new life while under the scrutiny of his old friend Charlie (Murray Hamilton), who had recommended then-Arthur Hamilton for Company rebirth.

taught at the UCLA film school, where he made a lasting impression on students Stephen Burum and Dean Cundey, both of whom would become prominent ASC members. His work was both classical and experimental and gave his disciples the drive to explore new visual storytelling vistas.

Seconds left a lasting legacy on a new era in American filmmaking. Paramount's recently released 1.75:1 video version of the film is headed for the hands of a nascent generation of cinematographers and directors who will shape the cinema of the 21st century. Authorship arguments can travel from the printed page to the Internet, but *Seconds'* radical visual statement continues to spread the message that cinematic rules were made to be broken. ◆

Credits

A Paramount *picture; A* John Frankenheimer *film; A* Joel Productions, Inc. *presentation; produced by* Joel Productions Inc. *and* John Frankenheimer Productions Inc. *in association with* Gibraltar Productions Inc.; *producer,* Edward Lewis; *director,* John Frankenheimer; *screenplay,* Lewis John Carlino *based on the novel by* David Ely; *director of photography,* James Wong Howe, ASC; *art director,* Ted Haworth; *music,* Jerry Goldsmith; *set decorator,* John Austin; *sound recording,* Joe Edmonson, John H. Wilkinson; *camera operators,* Roy Clark, John Stephens, John A. Alonzo; *hairstyles for Miss Jens created by* Sydney Guilaroff; *film editors,* Ferris Webster, David Newhouse; *titles,* Saul Bass; *production manager,* Lloyd Anderson; *assistant directors,* Francisco Day, Michael Glick; *script supervisor,* John Franco; *paintings by* John Hunter *on loan from the* Ryder Gallery; *key grip,* Richard Borland; *property master,* Frank Agnome; *costumers,* Jack Martel, Pete Saldutti; *makeup artists,* Jack Petty, Mark Reedall; *dialogue coach,* Thom Conroy; *assistant film editor,* Stewart Linder; *sound effects editor,* Howard Beals; *Running time: 107 minutes.*

Man in station, Frank Campanella; *Arthur Hamilton,* John Randolph; *Emily Hamilton,* Francis Reid; *Secretary,* Barbara Werle; *Tailor shop presser,* Edgar Stehli; *Meat man,* Aaron Magidow; *Nurse,* De De Young; *Girl in boudoir,* Francoise Ruggieri; *Charlie,* Murray Hamilton; *Dayroom attendant,* Thom Conroy; *Mr. Ruby,* Jeff Corey; *Old Man,* Will Geer; *Dr. Innes,* Richard Anderson; *Antiochus Wilson,* Rock Hudson; *Davalo,* Khigh Dhiegh; *Texan,* John Lawrence; *John,* Wesley Addy; *Nora Marcus,* Salome Jens; *Henry Bushman,* Ned Young; *Sue Bushman,* Dody Heath; *Plump blonde,* Elisabeth Fraser; *Mayberry,* Robert Brubaker; *Mrs. Filter,* Dorothy Morris; *Mr. Filter,* Kirk Duncan; *Dr. Morris,* Karl Swenson; *Dr. in operating room,* William Richard Wintersole.

Additional reporting for this article was contributed by David E. Williams.

American Cinematographer

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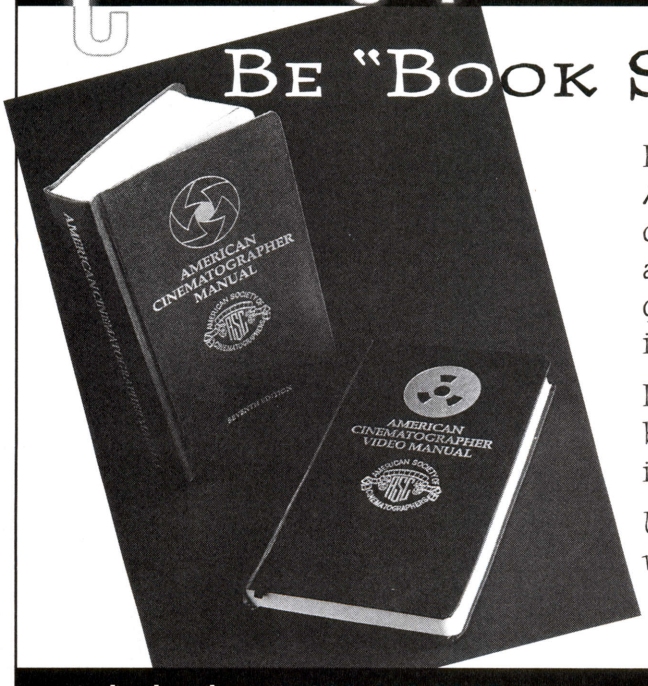

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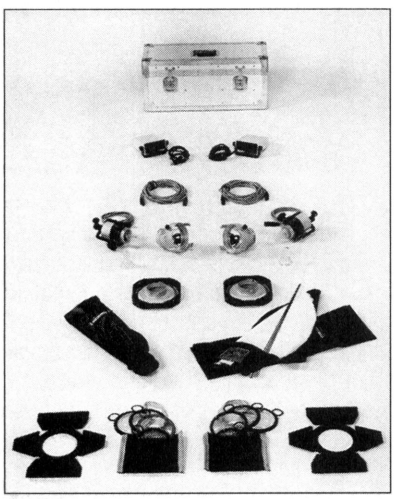
compiled by Lisa Sibert

Kodak Introduces Super 8 Stock

In September, Eastman Kodak unveiled a new, silent Super 8 color reversal film — Ektachrome 7240 — which employs the same imaging technology as its similarly named 16mm sibling, Eastman Ektachrome film 7240. The 8mm emulsion is rated for an exposure index of 125 in 3200° Kelvin tungsten light; in daylight, the stock has an exposure index of 80 with an 85B filter on the camera lens.

This color reversal film is designed for processing Kodak VNF-1 and RVNP, and replaces the recently discontinued Kodak type G Ektachrome 160 movie film, EG 464C (Super 8mm silent cartridge).

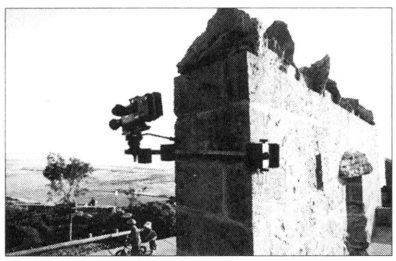
Eastman Kodak, (760) 438-5250, Fax (760) 438-5230, E-mail: CCSPR@aol.com.



Joker-Bug 125 and Accessories

K 5600 Lighting introduced the Joker-Bug 125 and its accessories at September's ShowBiz Expo in New York. The Joker-Bug 125 was designed as a close-up light. Like its more powerful 200- and 400-watt counterparts, this version offers the same illumination qualities as Chinese lanterns and Lightbanks; due to its low wattage, the Joker Bug can run on a 30-volt battery for up to 72 minutes. The Beamer accessory turns this fixture into a directional Par HMI, similar to the Joker System. A large variety of beam patterns can be achieved by adding the set of four lenses — Super Wide7, Wide, Medium and Frosted Fresnel. The Beamer is machined in a solid aluminum block, for better cooling, better fitting and durability — this combination offers flexibility in location lighting control.

K 5600 Lighting, (818) 762-5756, (800) 662-5756, Fax (818) 762-6629, www.k5600.com.



Cinekinetic's New Camera Mount

The Miracle Mount lets one mount a camera on just about any stable surface with an almost total disregard for size and shape; one can hang the camera outside a window, hook it to a lamppost, attach it to a lighting grid or suspend it from an overhanging highway bridge. The camera bowl orients to any position whether vertical or horizontal. The Miracle Mount's jaws can be adjusted to any thickness from a 1"-thick table to a 50'-wide house.

The Miracle Mount comes with enough extension tubes to fit across a 3' span. (Extra tubes can be ordered from Cinekinetic if larger span areas are needed.) Ratchet straps are included so that this mount can be attached to round items like a tree, a pillar in a building or irregularly shaped objects such as boulders; the straps have a 15' circumference.

Protective rubber cushioning shields soft surfaces like plaster walls or bark on trees, while spacer blocks make it possible to clamp your camera over uneven surfaces like window ledges.

The Miracle Mount comes with a 100mm bowl. A 150mm bowl, Mitchell mount and a range of non-standard bowls are available as optional extras, and a deluxe carrying case is included free of charge.

Cinekinetic USA, (702) 731-4700. E-mail: cinekine@ois.com.au.

Porta-Brace Tripod Shell Pack

The Tripod Shell Pack is a padded case with an armored interior shell ideal for everyday field work and able to withstand the rigors of extensive travel. An alternative to heavy, unforgiving freighter cases, the case provides lightweight durability, secure padded protection, and convenient internal and external pockets. Interior tie-downs and cushioning provide secure protection for your valuable equipment. The Shell Pack has a backpacking system and carry handle identical to those on the new Tripod Mummy Pack Two.

Four hanging pockets (two on each side) hold padded blocks for shipping protection, or can support tripod plate and excess gear. Two sets of adjustable red Velcro straps will cinch a tripod's head and legs. Also featured are a quick-release maple handle with a padded grip, multiple exterior zip pockets and a hard rubber foot pad. When prepared for travel, the backpack hides away in its own compartment and the padded carry handle is completely covered for snag-free shipping.

Porta-Brace, (802) 442-8171, Fax (802) 442-9118.

Enhanced Light Control

Photoflex introduces new fabric grids designed to fit into the front recess of a softbox, thus enhancing light control. The grids reduce the angle of light from a softbox while maintaining the soft quality of the large light source.

PreOwned Packages.

16mm/35mm Cameras & accessories

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DP's Dialogue No. 1

Obtain more contrast and much more glare reduction, with less greenish cast.

Every time you shoot a rigged-car scene, you battle glare from glass. Until now you often had to settle for low-contrast, grayed-out, greenish windshields, and flat interiors.

TRUE-POL™ to the rescue!

TRUE-POL Filters are 12-times better than the polarizers you have been using. Now you can shoot through glass and capture more color saturation, more density, and much more tonal range inside the car. That translates into more great takes, less wasted time, and the reality of a windshield in the scene, without degrading the visual quality.

Schneider lenses and B+W Filters are world renowned for superior optical quality, so it's not surprising that TRUE-POL Filters provide an effectiveness (technically called Extinction Ratio) measuring over ER 374. Compare that to your present polarizing filter, which is approximately ER 31, and you'll switch to TRUE-POL, and win more audience raves at your dailies.

For specs and more information contact
Schneider Optics Inc.
285 Oser Avenue
Hauppauge, NY 11788 USA
TEL: 516 761-5000
FAX: 516 761-5090
email:info@schneideroptics.com
http://www.schneideroptics.com

B+W FILTER
Schneider KREUZNACH

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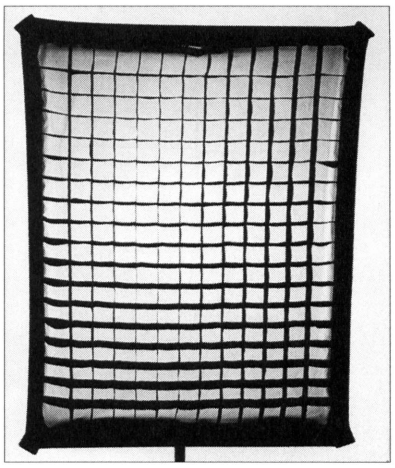

Adding a grid to your softbox opens up new soft-lighting possibilities. Grids prevent undesirable spill light and exposure around the subject, making them good tools for dramatic soft lighting.

Fabric grids will not add a significant stress to your softbox, as they are compact and lightweight, and fold up into a small bag for portability.

Photoflex, (800) 486-2674, (408) 454-9100, Fax (408) 454-9600, E-mail: photoflex@photoflex.com.

Ultra-Compact Camcorder

Panasonic Broadcast & Digital Systems Company (PBDSC) introduces the ultra-compact AG-EZ20, a digital video (DV) format, digital signal processing camcorder weighing less than 1.5 pounds. The AG-EZ20 will record up to 90 minutes of digital component video and digital audio on a DAT-sized ¼ inch cassette. The miniature DV cassettes can be played back in all of Panasonic's DVCPRO studio VTRs (using an optional adapter).

The diminutive camcorder is equipped with a 4-pin IEEE 1394 "Firewire" interface for digital-to-digital signal transmission or reception when connected with a DVCPRO VTR, nonlinear editing system or a soon-to-be-introduced IEEE 1394-equipped personal computer.

The AG-eZ20 features a ⅓-inch 650,000-pixel CCD and an extremely bright F1.4 aspherical lens (rivaling the performance of high-quality, single-lens reflex cameras) to deliver a quality picture with more than 400 lines of horizontal resolution, a signal-to-noise ratio of 54dB and a minimum illumination of seven lux. The camcorder also offers low power consumption, allowing up to 90 minutes of recording on a standard battery.

The unit features a 4-channel, 16-bit, 48kHz CD-quality Pulse Code Modulation (PCM) digital sound system. The camcorder has a built-in stereo microphone and can accept an external microphone.

Equipped with both an angle-adjustable, 3.8" color LCD monitor and a 0.5" color viewfinder, the camcorder offers viewing flexibility no matter what the shooting conditions; the unit also features a built-in EBU time code generator for precise studio editing.

The AG-EZ20 is also equipped with 10X optional and 25X digital zoom functions, as well as a 100X super digital zoom, which moves from wide-angle to full zoom in less than a second. The camcorder's newly developed autofocusing system provides for quick focusing as well as an easy-to-use manual focus. The F1.4 lens allows focusing of up to ¼ inch from the subject for videotaping small objects. The lens can also accommodate 30.5mm special effects filters.

The AG-EZ20 is preset with the ideal iris size and shutter speed settings for a variety of shooting conditions, and offers five programmed auto exposure (AE) modes for sports, portrait, low light, spotlight and surf and snow. The unit has three digital image effects (wipe, mix and strobe), as well as digital image stabilization for jitter-free images even in the zoom mode.

The Digital Still Shot allows recording of a high-quality still image and about seven seconds of sound (a 60-minute videotape holds about 750 stills). The camcorder's Time/Date Stamp function records hours, minutes, seconds on the videotape and displays it onscreen during playback.

Built in a tough aluminum die-cast chassis, the AG-EZ20 is a rugged, high-strength camcorder. In addition, an AV output box, which plugs directly into

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5" Rainbow™ Monitor

The video-assist accessory specialists.

Why has Panavision Inc. chosen the 5" Rainbow™ Monitor:

When we first met with Panavision, they were looking for a lightweight flat screen to equip the new Millennium cameras. They were testing all the 4" LCDs they could find. **None of the current 4" screens would give an acceptable resolution to Cinematographers.**
As the weight and size of the screen was a prime concern, Transvideo designed a 5" monitor with the physical size and weight of a 4". The 5" Rainbow Monitor was born.

Panavision says:
"Transvideo worked with us to customize the size of the enclosure, input and output connectors and power requirements. The monitor exhibit good off axis viewing angles and is very bright, even outdoors. We have had many positive comments concerning the viewability of the units."

Pictured above on a Panavision Platinum camera,
the 5" Rainbow™ is now part of the standard Millennium Camera Package.
It is also available for purchase with XLR4 or Lemo 2 plug for power input.

Main features:

- Color and Black & White Screen
- Excellent viewing in full sun without hood.
- Wide off-axis viewing.
- Anti-glare and anti-reflective coatings.
- Monitor reverse (to hang monitor upside-down).
- Highly shock resistant.
- Video-in (BNC), Video-out (BNC) auto-terminated.
- 10v-28v DC on XLR4 or Lemo 2.
- 1 lbs. 2" thick with XLR4 and 1-1/4" thick with Lemo 2.

Transvideo also manufactures: 6" CineMonitor™, 10.4" and 14" monitors, Frameline Generator, Hermes™ & Pegasus™ Wireless Receivers

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DP's Dialogue No. 2

Spray less wax on chrome with TRUE-POL™.

Shooting bright metal presents you with glare and reflections that can wreck a scene. Until now, there was little you could do about it, except gunk it up with noxious, smelly, dulling spray, hope for the best, and settle for that phony dull-metal look.

TRUE-POL to the rescue!

TRUE-POL Filters are 12-times better than the polarizers you have been using. Now you can shoot right at shiny surfaces and capture more color saturation, more density, *and* visual reality. That translates into more great takes, less wasted time, and more raves at dailies.

And, the cast and crew will thank you for not subjecting them to dulling spray fumes.

Schneider lenses and B+W Filters are world renowned for superior optical quality, so it's not surprising that TRUE-POL Filters provide an effectiveness (technically called Extinction Ratio) measuring over ER 374. Compare that to your present polarizing filter, which is approximately ER 31, and you'll switch to TRUE-POL.

For specs and more information contact
Schneider Optics Inc.
285 Oser Avenue
Hauppauge, NY 11788 USA
TEL: 516 761-5000
FAX: 516 761-5090
email:info@schneideroptics.com
http://www.schneideroptics.com

B+W FILTER
Schneider KREUZNACH

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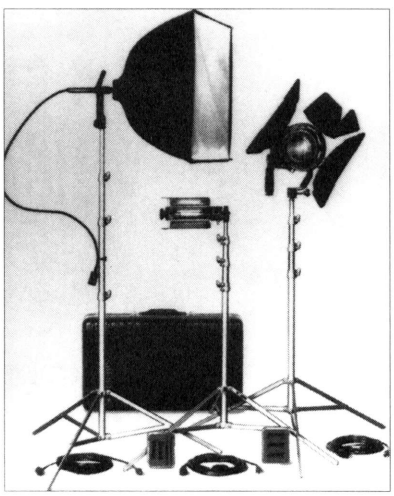
the AG-EZ20 via a 36-pin connector, provides five additional output terminals: S-video out, video out (RCA), audio out, headphone out and remote (5-pin).

Additional features include an automatic high-speed search of blank and altered sections, a wireless remote controller for recording at a distance of more than 15 feet, digital search at 10X normal speed and cue and review at 60X normal speed, and 4-mode white balance. Optional accessories include 2.5A and 1.25A battery packs, AC adapter/charger and car battery charger.

PBDSC, (800) 524-0864.



New Lowel Products

Lowel announces several new products, including new kits and cases for their Rifa and Fren-L 650, a new i*d*-light, and Litebags, a line of soft cases.

The New Core Kits combine the Fren-L 650, Rifa and Tota-Light with additional space to add lights and accessories.

Lowel's new i*d*-light offer dimming and focusing for light control. The integral DC dimmer uses solid state microelectronic pulse-width modulation technology to control the amount of energy supplied to the light. The high switching (20kHz) dimmer allows for smooth dimming and prevents acoustical noise from being emitted from the bulb. Other i*d*-light features include: 12v/14v, 55 or 100 watt lamps; interchangeable reflectors; unique ViP light control and mounting accessories.

Finally, the new Lightbags, a line of soft cases for Lowel equipment, feature Heavy Duty Litebags by Kata.

Lowel-Light Manufacturing, Inc., (800) 334-3426, (718) 921-0600.

DSP Series CCD Color Video Cameras

Elmo presents the TSN-410D Series of advanced, factory-preprogrammed Digital Signal Processing CCD Color Video Cameras that offers a quality picture, onscreen display and over 470 TV (H) lines of resolution. The Elmo DSP cameras have high-quality picture output, require virtually no tweaking, and offers automatic or manually selectable three-zone photometric backlight compensation which produces crisp, clear pictures even under such extreme illuminations as bright sunlight or spot sources.

Available with three different power sources, the DSP Series includes TSN-410D (24V-AC), TSN-411D (12V-AC) and the TSN-412D (120V-AC); the TSN-410D and the TSN-412D are each equipped with a built-in isolation transformer. Featuring an advanced Digital Signal Processing circuitry with an easy-to-operate on-screen display, the cameras also feature high-quality ⅓" CCD pickup element with 410,000 pixels; a minimum illumination of 2.2 lux at F1.2; a full automatic or manual tracing white balance; an auto/manual electronic shutter from $\frac{1}{100}$s to $\frac{1}{10,000}$s plus increments of 1H-262H ($\frac{1}{10,000}$-$\frac{1}{60}$ second); auto gain control (AGC); auto iris lens for both DC and video (4-pin square connector) and CS/C lens mount with optional adapter ring.

The sync system includes line-lock, internal/external with automatic changeover. The iris terminal is located on the side of the camera for fast, easy installation, and the camera control buttons and switches are quickly accessible at the rear of the camera.

Elmo, (516) 775-3200, Fax (516) 775-3297, E-mail: elmo@elmo-corp.com.

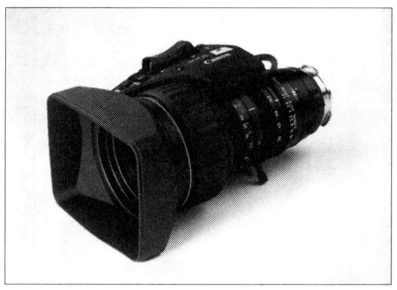
Canon's IFpro 18X Lens

Pro-video users can now take advantage of the technology that broadcasters have enjoyed for years — internal focus (IF). IF technology allows the

shooter to get closer to the subject, while capturing an even wider-angle image — an important factor in cramped situations where space is at a premium.

The YJ18X9B KRS and YH18X6.7 KRS offer a zoom ratio of 18X, an angular field of view of 52.1 degrees x 40.3 degrees and a short 0.9m MOD. All optical accessories including wide and tele-side converters are also available.

The 18X IFpro lens enhances user creativity by allowing the use of polarized and cross filters more effectively, since with IF technology the front of the lens does not rotate. In addition, the trademark square hood of IF serves to reduce problems of ghosting and flare, while the technology reduces longitudinal and lateral chromatic aberrations.



IFpro lenses are also much easier for those required to shoot tape for hours on end. The lens is equipped with an angled ergonomic grip, a special protein paint which actually absorbs perspiration, a lightweight design (2.87 lb.) and quiet operation.

Canon Broadcast, (800) 321-4388, E-mail: bctv@cusa.canon.com.

A New Wave in Combination Inverter/Battery Charger

Statpower Technologies Corporation of Burnaby, BC, Canada introduces a PROsine 2.5 Inverter/Charger that delivers the same true sine-wave output as utility companies — the same grid power from which all AC-powered equipment is designed to operate. Motors and transformers operate more quietly and with less heating. Video and audio equipment, however, is not susceptible to audible buzzing or visible lines caused by distorted power.

The PROsine 2.5 has an 87% efficiency at its continuous rated output power. The efficiency curve is extremely flat, so at output levels above or below the continuous rating, a high efficiency

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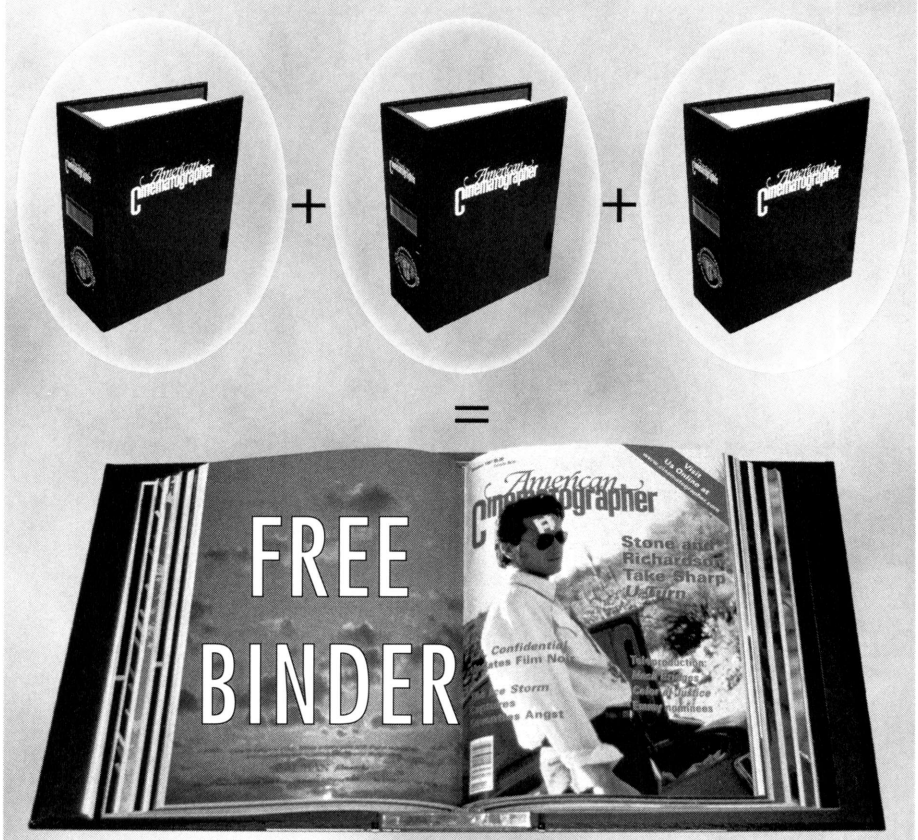

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rating is still maintained.

The inverter generates 2,500 watts of continuous output with a five-second surge rating of 4,000 watts, and boasts a peak efficiency of 88%.

As a battery charger, the Statpower PROsine Inverter/Charger recharges batteries quickly and accurately by means of a multi-stage, 100-amp rated charge. Compared to most competitive units, it uses up to 30% less AC current to deliver the same output of DC charging current. For the user, this means that more AC power is available for other AC loads and full-output operation from smaller generators.

A standard remote display/control panel provides convenient access to important system information such as battery status, fault and temperature warnings and power indications for both inverter- and charger-mode operation.

The high-frequency switching technology of PROsine also means a small size. At 32 lbs., measuring 20" x 15" x 5.5", the unit is easy to install and doesn't require much space.

Statpower Technologies, (604) 420-1585, Fax (604) 420-1591.

Open-Architecture Multimedia Cable

Belden Wire & Cable Company announces the availability of the MediaTwist "open architecture" multimedia cable. This unshielded twisted pair (UTP) cable is designed not only to support multiple applications such as audio, video, data, broadband and telephone, but can also support these various applications simultaneously, using each of the four-pairs to carry an individual signal.

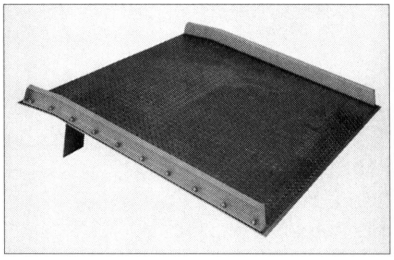
For instance, MediaTwist has carried 77.5 MHz/155 Mbps ATM on two pairs and 22 channels of broadband CATV (216 MHz) on an adjacent pair at a distance of 110 meters (361 ft.); MediaTwist has also carried two analog baseband video signals (4.2 MHz) and two channels of analog audio up to 400 meters (1312 ft.) with excellent picture and sound quality at the receiving end; in another demonstration, MediaTwist carried 270 Mbps/135 MHz serial digital video on one pair and RS-422 machine control on two adjacent pairs, with no discernible bit errors, for over 137 meters (450 ft.).

This new cable is limited only by system-based restraints: the standards imposed, the connectors required, and the quality and balance of the equipment feeding and receiving the signals.

To allay fears of cable emissions, MediaTwist has been tested with 270 Mbps/135 MHz serial digital equipment at the Underwriter Laboratories facility in Northbrook, Illinois. Not only did MediaTwist pass stringent tests intended for coax cable, but it was awarded a Class A Certification for Digital Devices.

MediaTwist cable is available with 24 AWG solid bare copper conductors for both plenum and non-plenum installations. The plenum versions are FEP and polyolefin insulated and have a flexible Flamarrest jacket with ripcord. The non-plenum versions are polyolefin insulated and feature a PVC jacket with ripcord. Jacket colors are red, orange, yellow, green, blue, purple, gray, white, gold or natural.

Belden Wire & Cable Company, (800) BELDEN-4.



New Line of Dock Boards

Magline, Inc., introduces a line of Aluminum Dock Boards with Steel Curbs to complement its already existing line of TL Plates and All-Aluminum Dock Boards with Aluminum Curbs.

The new dock boards are constructed of aluminum tread plate (6061-T6 alloy) and high-strength steel curbs. The full-length curbs are 4' tall and have beveled edges for maximum safety. In addition, the dock boards have reversible stops for refrigerated truck applications. They are available in 10,000-pound and 15,000-pound capacities and range from 60" x 36" to 72" x 60". Optional lifting chains are also available.

Magline, Inc., (800) 624-5463, Fax (517) 879-5399.

Canon DK-1 DV Image Capture Kit

Canon USA introduces the DK-1 Digital Video Image Capture Kit. The kit

complements DV camcorders with the IEEE 1394 DV terminal by allowing direct digital connection to a PC. Consumers can create a digital darkroom offering the ability to import, manipulate and output high-resolution stills from their PC to a printer.

The kit includes the Adaptec FireCard AHA-8940, Adaptec's FireSoft drivers, the IEEE 1394 DV cable and Canon's DV commander application for camera control and still image capture. The kit also includes MGI's PhotoSuite software for photo editing.

Canon USA, (516) 328-5145.

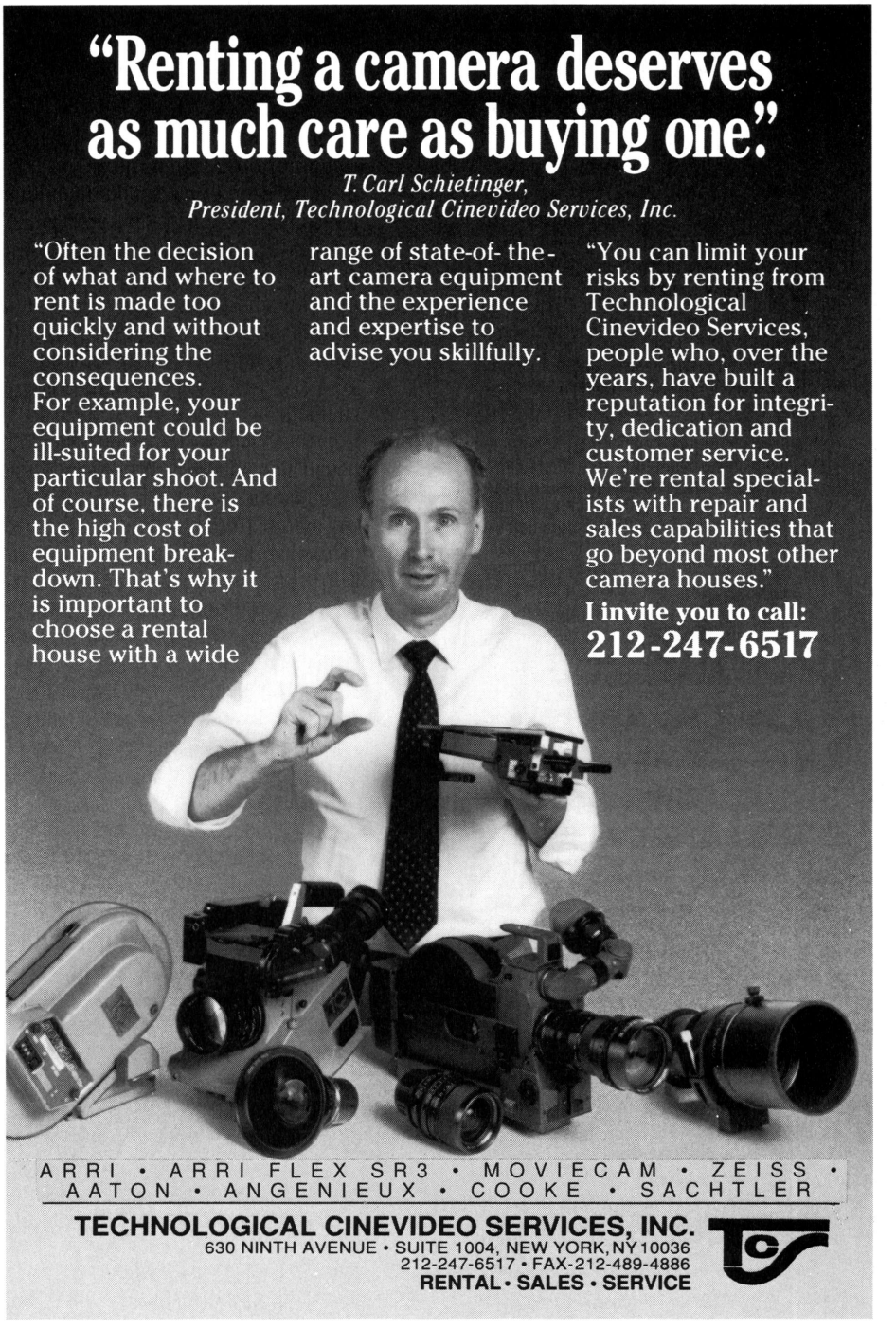
Dual Platform Support for High-Speed Beluga AV Drive

Nikon Optical Storage and ATTO Technology announced jointly that ATTO's new dual-platform ExpressPCI SCSI host adapter now supports Nikon's Beluga AV 2.3GB direct-overwrite MO drive.

With the dual-platform ATTO host adapter, Beluga AV users can move between Macintosh and PC environments without having to replace a ROM BIOS or use specialized software. Regardless of the platform, ATTO's Advanced Data Streaming (ADS) technology optimizes the performance of the Beluga AV, allowing it to function at its maximum speed for a wide range of data-intensive applications, including digital video, animation, prepress and audio applications.

The new direct-overwrite Beluga AV utilizes Nikon's LIMDOW (Light Intensity Modulation Direct OverWrite) technology — a technology that eliminates the need to erase prior to writing. As a result, the write performance is effectively doubled and the drive can achieve data transfer of up to 4MB/sec. (10MB/sec. burst). For AV production and postproduction, the write transfer rate is a key consideration due to its major impact on performance when storing large files or performing backups. Performance is further enhanced with a full 4MB of cache memory. In addition, the Beluga AV drive provides uninterrupted data flow, and important feature for audio and video professionals because it eliminated pauses, motion flicker and sound distortion.

Unlike specialized hard drives, which must be upgraded or replaced



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*12.5-100mm f2.0 Vario-Switar MC "Bay or C" $4,125.00
*14.5-115mm f2.3 VS (Super/Normal-16)"Bay" $6,454.00

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*14.5-115mm f2.3 Vario-Switar MC Bay 16/S16 .. $5,929.00
*16-100mm f1.9 Vario-Switar POE-4 Bayonet . $3,600.00
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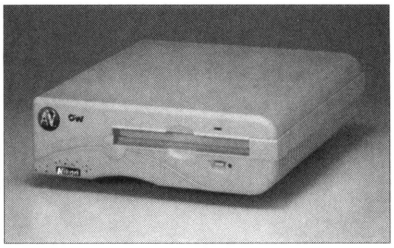

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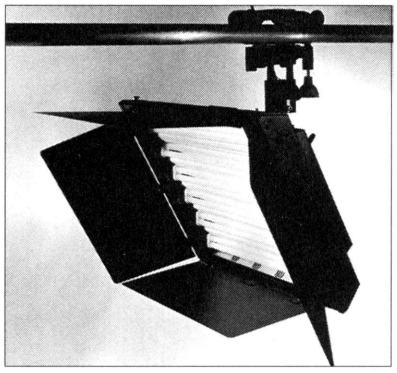
Audio Limited, UK, 44 (0) 1494 511711, Fax 44 (0) 1494 539600.



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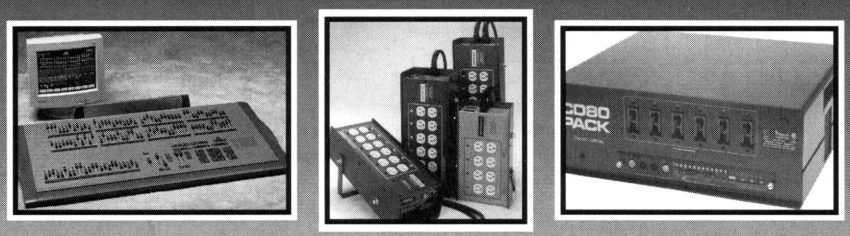

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MovieTech, (089) 434081, fax (089) 4312961, E-mail: 113206.1105@ compuserve.com. ◆

Color Timing Comes to the Fore

by Eric Rudolph

Amid the current surge in independent feature production, increased emphasis is being placed upon the work of color timers, who are now being invited to take a more active role in helping filmmakers to accomplish their often unusual visual goals. "Indie filmmakers are pushing the envelope with their creative use of stocks and innovative approaches to lighting, processing and images," says Du Art timer Kent McGrew. "Labs used to be like big faceless factories; now, the independents want to experiment, so the relationship between the filmmaker and the lab is becoming more personalized."

As an example of this trend, McGrew cites *Nil by Mouth*, the semi-autobiographical directorial debut of British actor Gary Oldman, which was photographed by Ron Fortunato (*Mac, Basquiat*). The color timer recalls that the filmmakers wanted a "rough, dark, cold and dreary-looking" film that would emphasize the bleak environs of working-class South London.

To obtain this rough, grainy veneer, *Nil by Mouth* was purposely shot in the Super 16 format, on Kodak's 200 ASA 7293 stock. Oldman was slightly disappointed with the results, however, feeling that the emulsion appeared to be too similar to 35mm stock. The desired dark look also prevented McGrew from emphasizing grain by pumping more light through the film. "They perhaps should have shot regular 16mm, which would have resulted in more grain in the blow-up," McGrew suggests.

Due to the varied hues of *Nil by Mouth*, McGrew had to forsake any type of conventional color timing approach. "There is no look in this film that could be described as 'normal,'" he explains. "Ron Fortunato devised a color palette that was keyed by cold-looking exteriors and the oppressive yellow lights found in the hallways of the London housing blocks and in the streets. There are scenes in which the characters go from the hallways with these yellow lights and then out into the cold gray of a dark English day. [The palette] goes from gaudy to dark and dreary, which makes for wonderful contrast and is emotionally quite powerful."

Experimental approaches like those used on the Oldman film, notes McGrew, require filmmakers to establish solid communications with the color timer. "It is my job to interpret the look they're after, but the filmmakers have to communicate their vision to me in some manner. Everyone's communication style is different. Ron Fortunato basically told me he wanted the film to be dark and cold, but he found our first print to be not nearly dark enough, as well as too warm. I felt that to have gone further into the dark and cold realm at that early point would've been too much, but that was exactly what the filmmakers wanted.

"We had further discussions during which Ron was much more specific. He told me that the flesh tones were too warm, and that he was after a pale, pasty English look; he therefore said that I should pull as much color out of the flesh tones as possible. The interiors also looked too warm and conventional. All of the discussions we had after viewing the first print were about making everything darker and colder."

The extreme nature of Oldman and Fortunato's approach to *Nil by Mouth* probably contributed to the fact that the initial print missed the mark. It's an atypical filmmaker who would partially light an interior through a window with yellow sodium-vapor streetlamps, and fewer still would direct the timer to emphasize such gaudy amber illumination upon the lead actor's face. "We worked on emphasizing the light from those streetlamps as much as we could," notes McGrew.

Anecdotes from the actual

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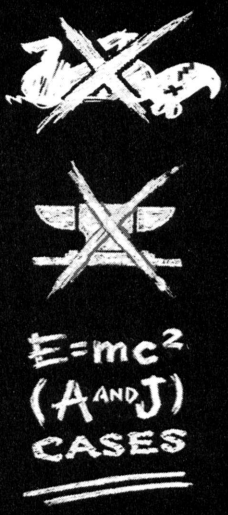

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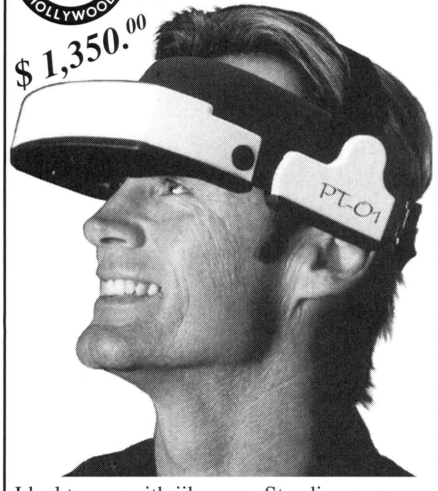

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shoot also provided McGrew with clues about the filmmakers' unusual intentions. "Ron told me that if they happened to have the rare sunny day, they wouldn't shoot, at least not exteriors. That helped me to understand that they wanted a scene shot during an incredibly rainy day to look like nighttime in the middle of the day, which is how I timed the scene."

Another independent feature to which McGrew lent unique color timing was *Sunday*, winner of the Grand Jury Prize for Best Dramatic Film at this year's Sundance Film Festival (see Production Slate, *AC* Sept. '97). *Sunday* was lit with a wild mix of color temperatures — quite often, one shot would blend orange household tungsten lights, green fluorescents and bluish daylight sources. Director Jonathan Nossiter wanted to preserve as much of that kaleidoscopic look as possible in the finished film.

McGrew submits, "Jonathan Nossiter is a real artist with a great eye, and he was very open to bending the rules and making new ones. He was willing to collaborate on the color timing of *Sunday* — he wanted my take on it. We experimented together and came up with something we think is unique.

"Initially, Jonathan told me, 'I want to make this crazy and push the limits' in terms of maintaining the look of the different color temperatures. However, in our first print, [the mix of sources] was too much: scenes in the fluorescent-lit homeless shelter were intensely green and looked very strange. Jonathan acknowledged that such a radical approach wasn't the best thing for the film. Not many directors would do that."

The rise of the independent scene has created another challenge for colorists: they are spending more time than ever helping filmmakers attain looks that time and budget constraints prevented them from achieving during principal production. "It is hard for independent filmmakers to realize their vision on location," says McGrew. "Their world is filled with compromises, and they often turn to the colorist to help them reinvent scenes and get closer to the look they were trying to get during the shoot."

The net result of these factors, McGrew maintains, is that filmmakers are "now more involved with color timers. We have a more immediate connection with the films we work on, which is both exciting and stimulating." ◆

Books in Review

by George Turner

Our Movie Heritage
by Tom McGreevey
and Joanne L. Yeck
Rutgers University Press,
hardback, 208 pps., $45

The fact that more than half of the American movies made before 1950 have been irretrievably lost, some 80 percent of pre-1929 films are now extinct, and many comparatively recent films have deteriorated can be blamed on the instability of the cellulose-nitrate film stock, the primary composition of professional movies up until the Fifties. This film decomposes under even ideal conditions, and is dangerous to store, given that it's a first cousin to nitroglycerin. For decades, prints and even negatives were routinely destroyed to make room in storage rooms for other films, or to permit retrieval of silver from the emulsion.

It's increasingly evident that even modern acetate film stock — once considered the salvation of decaying films — can succumb to the ravages of time, as George Lucas was shocked to discover recently when he examined the negatives of his *Star Wars* trilogy (see *AC* Feb. '97). A lot of money, man hours and technology were necessary to make the new prints now being exhibited. Acetate film tends to get vinegary with age, and color emulsions are also extremely vulnerable.

Much is being done in both private and public domains to preserve our motion pictures, but the problem of film decomposition is vast, time-consuming, and rapidly getting further out of hand. *All* film destroys itself eventually, but it's conceivable that a way may be found to immortalize film imagery.

McGreevey and Yeck examine the work of the major archives — the Library of Congress, the Museum of Modern Art, George Eastman House, and UCLA; also noted are the gains being made by the Academy of Motion Picture Arts and Sciences, the American Film Institute, private foundations and individuals. Studios and copyright holders such as Universal, Disney, Warner Bros., and Turner Entertainment are spending millions on restoration. For example, the computerized clean-up of *Snow White and the Seven Dwarfs* required 100 artists working 18 weeks on 119,550 frames of film.

The authors give all of these entities their due, and present an honest overview of what's currently happening. The nagging questions of which films to save, and how to pay for the process, are also explored in this highly informative, well-illustrated report.

Film Choreographers and Dance Directors
by Larry Billman
McFarland, 664 pps.,
case bound, $110

This is a whale of a good reference book for anyone interested in the history of dance in movies, but it also sports a whale of a price tag, which probably restricts its use to libraries and to the more dedicated disciples of Terpsichore.

Nevertheless, this important tome is not just another fluff piece about Busby Berkeley, Fred Astaire and Gene Kelly. Most of the first 179 pages comprise a surprisingly detailed, decade-by-decade history of dance on film. The balance is devoted to biographical sketches of choreographers, including filmographies and plenty of photos, beginning with Merriel Abbott and ending with Lachen Zinoune. In between are no fewer than 968 entries that include both the expected names — Larry Ceballos, Jack Cole, Dee Dee Wood, Louis DaPron, Bob Fosse, Hermes Pan, Albertina Rasch, Eddie and LeRoy Printz — and some unexpected ones. Among the latter are important innovators such as Ernest Belcher, the ballet master who choreographed numerous silent films such as *Broken Blossoms* and *Phantom of the Opera,* and Benjamin Zemach, creator of

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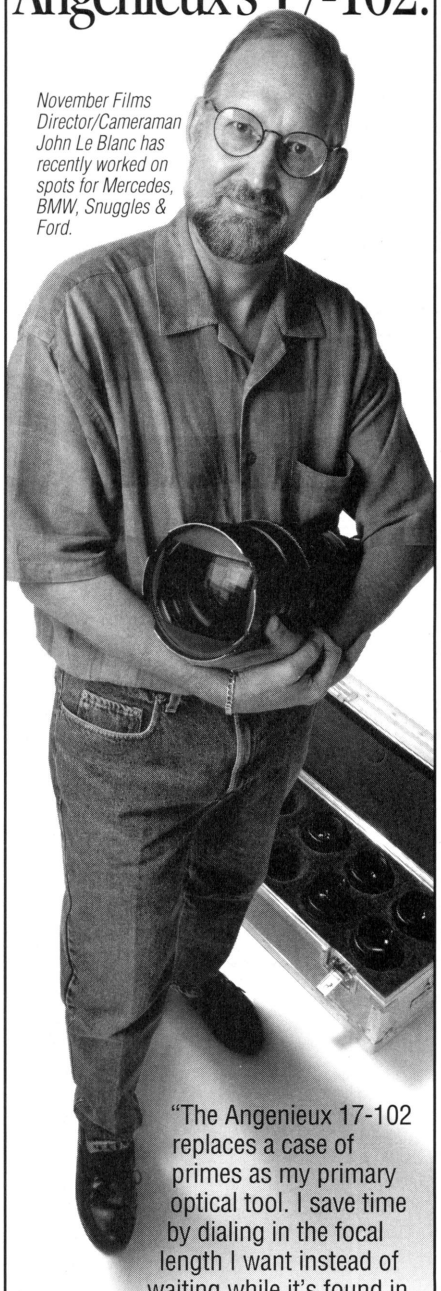

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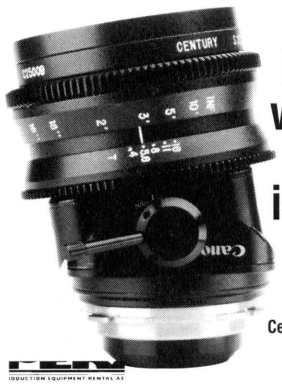

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the amazing Hall of Kings ballet in *She.*

Also noted are choreographers who became well known as movie producers and/or directors, such as Harold Hecht, Charles Walters, Berkeley, Kelly, Gene Nelson, Harold Ross and others. If you ever wondered whatever became of Veloz and Yolanda, Fanchon and Marco, Tamara Geva, the Gae Foster Girls, the Four (actually nine, altogether) Step Brothers or Sir Robert Helpmann, the answers are here.

The Book of Westerns
Edited by Ian Cameron and Douglas Pye
Continuum, 320 pps., cloth, $27.95

According to its foreword, this critical tome concentrates "on the period since 1939 and the definitive arrival of the Western in mainstream A-feature production... strands of Western production have [also] been excluded: series and serials, singing cowboy movies, and Westerns that are primarily musicals or comedies. Also excluded are Westerns produced in Europe..."

Thus, with fair enough warning, we know not to expect Mix, Maynard, Autry, or Rogers in these 27 essays by British academics and critics; that *The Covered Wagon* and *The Big Trail* were born too soon; and that the bloodbaths of Sergio Leone are off limits. Among earlier titles included are *Stagecoach, Drums Along the Mohawk, Dodge City,* and *Destry Rides Again,* and the dusty trail extends to Clint Eastwood's revisionist *Unforgiven.* Opinions and in-depth analyses of large-scale movies, plus discussions of the genre itself, are presented in detail.

Some of all this makes sense and reveals nuances typically omitted by most earlier assessors of this once critically despised genre. Unfortunately, the better qualities of genre movies never become apparent to intellectuals until such films are virtually extinct. Several contributors, as usual, are agog over "phallic rifles" and the endless search for androgyny in unexpected places. (Imagine Gary Cooper at high noon dueling a posse pointing phallic rifles at him!)

The less Freudian chapters, along with the many excellent photos, showcase the richness and variety to be found in the movies that America always did best. ◆

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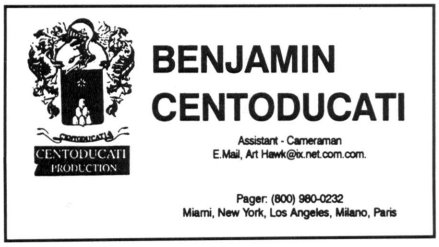

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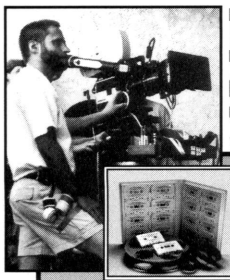

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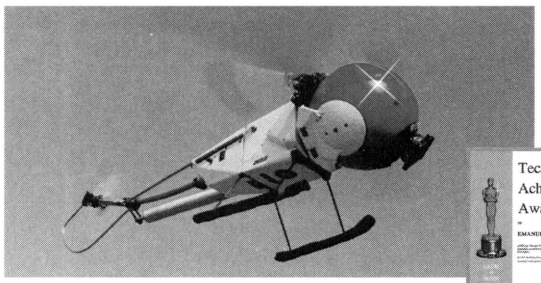

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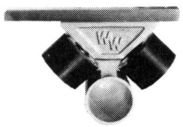

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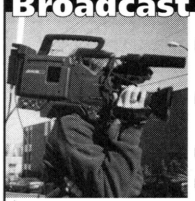

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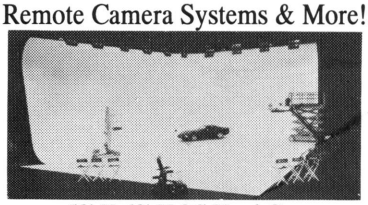

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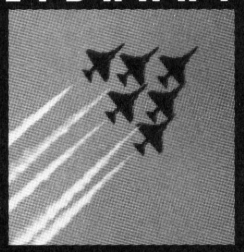

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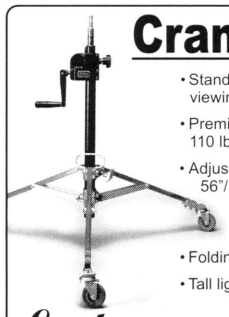

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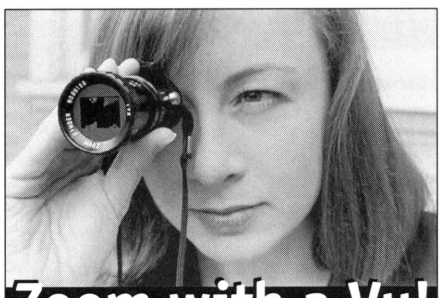

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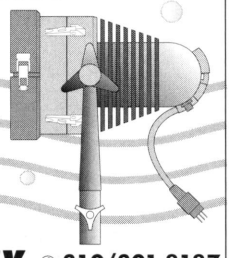

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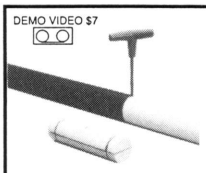

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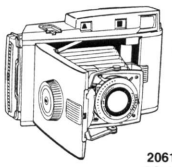

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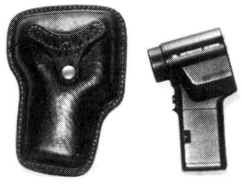

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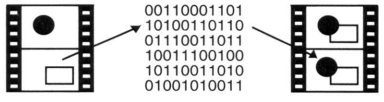

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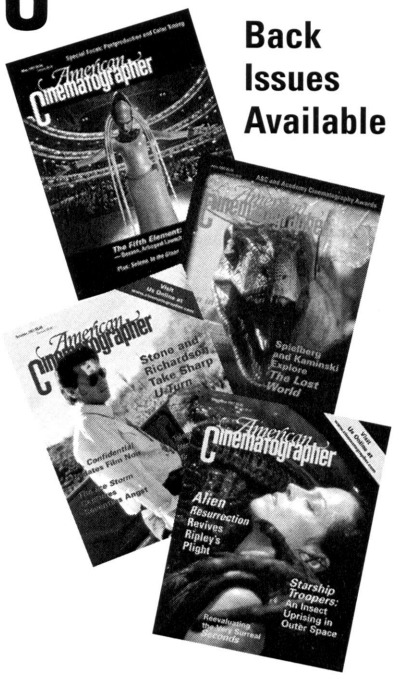

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In Memoriam

William T. "Bill" Cline, ASC, a gold card member (25 years or more) who enjoyed a long career as a cinematographer and color technician, died September 17 on in Laguna Hills. He was 82.

Born in Glendale, California in 1915, Cline studied to be a painter, but decided to follow the lead of his older brother, the late Wilfred M. Cline, ASC, a director of photography who specialized in Technicolor cinematography. William Cline went to work for Technicolor Motion Picture Corp. as a color technician, and soon became one of the top men in the field, collaborating with many leading cinematographers. He left the company after 15 years to become a camera operator.

"It was a great learning experience," he recalled. "In approximately seven years, I assisted and operated for ASC members Harry Stradling, Ray June, Lionel Lindon, Carl Guthrie, Will Cline, Joe Biroc, Ted Voigtlander, Wallace Kelley, Loyal Griggs, George Clemens, Ray Rennahan, Bob Planck, Art Arling, Karl Struss and Robert Burks. I became a director of photography in 1965, when I photographed 25 one-hour *Ben Casey* shows for Bing Crosby Productions." Cline joined the ASC's membership the following year.

That same year, he executed some of the earliest color photography for television in a series of half-hour Westerns for Pardee Productions. He subsequently shot about 285 network shows. Even while hewing to a hectic TV schedule, he continued his artistic studies. When not working as director of photography, he studied at the Laguna Beach School of Art and Design, where he worked in oils. During his time at the school, he studied under noted West Coast artists Kero Antoyan, Roger Kuntz, Earl Daniels, Jonathan Scott and Donna Sharkey.

Cline's series credits include *The Rounders* (MGM, 1966), *He and She* (CBS, 1967), *The Good Guys* (CBS, 1968-69), *The Don Rickles Show* (1970), *The Dick Van Dyke Show* (Independent, 1971-73), *The Mary Tyler Moore Show* (CBS, 1974-76), *M*A*S*H* (20th Century Fox, 1970) and *Grandpa Goes to Washington* (Paramount, 1978). He also photographed several Movie of the Week features for Aaron Spelling Productions, including *Coffee, Tea or Me* and *Everyone Needs One*. He retired from the cinematographic profession in 1979.

A widower, Cline is survived by his daughter, Rosemary LoBosco of Laguna Hills. In accordance with Cline's wishes, no services were held. ◆

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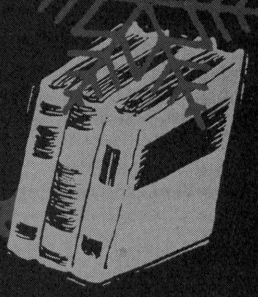

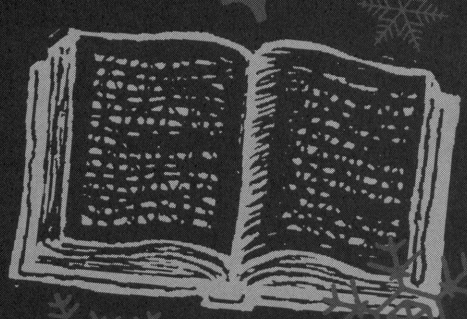

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From the Clubhouse

Bartley Joins ASC

John Bartley, CSC is the ASC's newest active member. Born in Wellington, New Zealand, he attended Scots College and Wellington Technical College. He relocated to Sydney, Australia, in 1967, where he worked as a lighting director for JC Williamson Theaters and Channel Seven. In June 1971, he moved to Toronto, Canada, to work for William F. White Ltd. He became the manager of their Vancouver office, renting lights, cameras and grip equipment. By 1976, Bartley had begun work as a freelance gaffer, assisting cinematographer Tak Fujimoto and such renowned ASC members as Sven Nykvist, Robert Stevens, Michael Watkins, Fred Murphy, Robert Steadman, Frank Stanley and Hiro Narita.

Ten years later, Bartley had a thriving career shooting commercials, music videos and movie trailers. His first feature as cinematographer was *Beyond the Stars* in 1988. He then photographed the TV series *Booker* and *The Commish*. In 1993, he began shooting the Fox TV show *The X-Files* (see *AC* June '95); Bartley's striking imagery on the series has earned him numerous accolades, including three ASC Award nominations and an Emmy Award. Since shooting the pilot for a series based on the film *Fargo*, Bartley has been working on the Centropolis/Fox sci-fi series *The Visitor*.

Young Named Associate Member

Irwin M. Young, the chairman of the board of DuArt Film Laboratories, recently joined the ASC as an Associate Member. All told, he has nearly 50 years of film industry service to his credit.

Young graduated with a BS in engineering from Lehigh University in 1950. During the course of his career, he has contributed his expertise to such award-winning features as *Nothing But A Man* (1964), *Alambrista!* (1978), *Get Rollin* (1980), *American Me* (1992), and *Caught* (1996).

Young's honors include the Association of Independent Film Video and Filmmakers Indie Award (given to him in 1997 and 1986), the Academy of Motion Picture Arts and Science's Technical Achievement Award, the Telluride Film Festival's Silver Medallion for helping independent filmmakers, and the Independent Feature Project/West's Friends of Independents Award.

Young was made an elected fellow of SMPTE in 1975, an appointed member of the British Kinematograph, Sound and Television Society in 1981, and served three terms as president of the Association of Cinema and Video Laboratories. He also has previously filled the following capacities: a board member/chairman of The Moving Image Inc.; panelist for the NYS Council of the Arts; and as a member AMPAS' Scientific/Technical Awards Committee. In addition to his DuArt duties, Young is currently an IFP board member, the president of Lincoln Society Film Center, and the president of the Western Broadcasting Corporation of Puerto Rico - WOLE (Channel 12).

Photo by Marvin Lopez.

Attendees at the Finnerman dedication included ASC members (from left) Victor Kemper, Owen Roizman, Gerald Perry Finnerman and George Spiro Dibie.

The ASC Attends Pana-Night

On September 15, Panavision opened the doors to its opulent Woodland Hills, California, headquarters for a unique educational opportunity — showcasing their new Millennium 35mm production camera. The night was well-attended by ASC members, including Owen Roizman, Victor Kemper, Robert Primes, Gerald Perry Finnerman, Vilmos Zsigmond, Laszlo Kovacs, Bill Butler, Mark Irwin, Donald M. Morgan, George Koblasa, Woody Omens, Isidore Mankofsky, Nancy Schreiber, William Wages, Wayne Kennan, John Bailey, Judy Irola, Roger Deakins, Gu Changwei, John Hora, George Spiro Dibie, and Haskell Wexler.

Their Panavision hosts included executive vice president Phil Radin, vice president of sales Bob Harvey, vice president of operations Larry Hezzelwood, head of R&D Nolan Murdock, creative services head Frank Kay, and Sebin Kelly, executive assistant to company president John Farrand.

Panavision sales director Tracy Langan and executive sales assistant Lori Killam organized the evening.

After tours of the spacious facility (which was surveyed in *AC* Feb. '97) and friendly informal discussion, the attendees were led into one of Panavision's shooting stages, where various pieces of production equipment were on hand for demonstration and examination.

The Millennium, unveiled at this year's ShowBiz Expo West, was of particular interest. The camera's specs were ably explained by Panavision engineers Al Mayer Sr. and Al Mayer Jr., who fielded a variety of probing questions from their guests.

A complete report on the new camera will be included in an upcoming issue of *AC*.

Finnerman Reception/Dedication

On September 14, ASC Vice President Gerald Perry Finnerman dedicated a room at the Motion Picture Fund Hospital in honor of his mother and father, Renee and Perry Finnerman, the ASC, and IATSE Local 600.

The event was well-attended by ASC members, including president Owen Roizman, COO Victor Kemper, vice president Robert Primes, Lathrop Worth, Harry Stradling, Jr., George Koblasa, George Spiro Dibie, Woody Omens, Wayne Kennan, Robert Liu, Al Taylor, , Ken Peach Jr., Bradley B. Six, John Elsenbach, Sy Hoffberg and Emil Oster.

The room was financied through a $300,000 gift from Finnerman and will be primarily used for the physical rehabilitation of patients who require long hospital stays for recovery. ◆

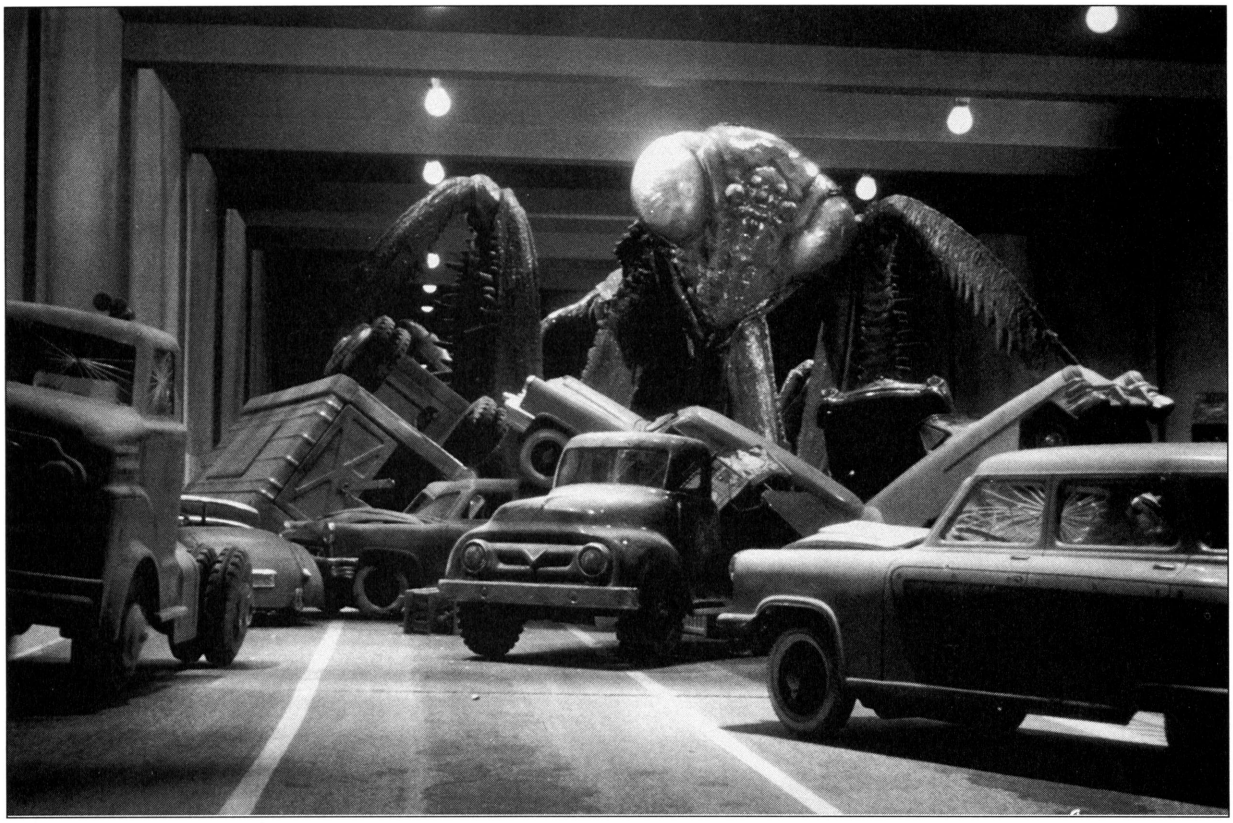

Photo courtesy of Ronald V. Borst/Hollywood Movie Poster.

Giant bugs first arrived in Hollywood in 1954, and remained for several years thereafter. This invasion began with *Them!*, a Warner Bros. picture in which elephant-sized ants, supposedly created by atomic bomb tests in the desert, descended upon Los Angeles as charmingly as a Hell's Angels convention. This surprisingly good flick — the studio's largest-grossing picture of the year — was followed by numerous imitations from other producers, who pressed into service almost every genus of insect and backyard pest (with the possible exception of the tumblebug).

Some independent companies leapt aboard the bug wagon, with mostly appalling results; among the horrors that surfaced were giant spiders in *World Without End,* monstrous grasshoppers in *The Beginning of the End,* huge wasps in *The Monster from Green Hell,* and another not so itsy-bitsy arachnid in the creatively titled *The Spider.* Somewhat better was *The Black Scorpion,* in which high-grade animation effects by Willis O'Brien and Pete Peterson lost a valiant battle against tight-fisted production values. Not too dissimilar were movies about lizards, rodents, mollusks, and other creatures that attained humongous onscreen proportions during the era of post-bomb paranoia.

Most of the best bugs emerged from producer William Alland's unit at Universal-International, where the scripts weren't much better but good production values and superior special effects made a lot of difference. The first of U-I's multi-legged menaces appeared in *Tarantula* (1956), a triumph of macrophotography and optical compositing in which an actual spider convincingly tramples actual Mojave scenery while terrorizing real people. Cinematographer Clifford Stine, ASC was in charge of the visual effects, and Fred Knoth supervised the mechanical effects.

The still shown here is from *The Deadly Mantis* (1957), U-I's second refugee from the garden. The picture was shot by Ellis W. Carter, ASC and directed by Nathan Juran. The praying mantis, while harmless to humans, is the T. Rex of its own world, with an instinct to dismember any fellow insect it may encounter, including its own kind. A specimen so large as to make these autos look like models — which, of course, they are — would be a monster indeed. Instead of working with a real mantis, the effects department constructed two versions of their star — an articulated one for action on terra firma, and another with flappable wings for flying scenes. Operated in real time via rods and wires, the creature created havoc in Washington, D.C. and Manhattan before succumbing to poison gas. Optical effects, miniatures and rear projection were applied in heroic doses to make the critter seem very much alive and among us. Actors Craig Stevens, Alix Talton and William Hopper ran the first line of defense.

— George Turner

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